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MEDICAL PATENTS

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Scientific investigators working in university and professional school laboratories are concerned primarily with the formulation of new ideas and the understanding of nature and its laws. The discovery and development of patentable inventions are seldom conscious objectives of their research efforts. They feel with Sir Henry Dale that "the primary and special function of research in the universities is to build the main fabric of knowledge by free and untrammelled inquiry and to be concerned with the practical uses of it only as these arise in the course of a natural development."[1]

Nevertheless, many of these new ideas and discoveries, the result of experiments undertaken with quite a different purpose, may have valuable commercial application or require protection and control in the public interest. Not only may these new ideas and discoveries contribute to scientific and technologic progress and to cultural and social advancement, but they may also be basic to industrial development and expansion. The protection and control provided under the patent laws may have to be invoked to obtain the greatest public benefit and usefulness from these products of scientific research.

Interest in science and scientific research, particularly in the natural sciences and in their application to engineering and medicine, was intensified and accelerated by experiences during the war. However, war is destructive and costly in scientific progress as well as in human life. During a war research projects are largely developmental in nature, designed to meet immediate and urgent needs. The normal course of scientific investigation is interrupted. Research workers are drawn from the laboratory; some never to return. The continuity of research in many fields is broken.

Scientists, industrial leaders and government officials are all concerned over the extent to which our storehouse of fundamental scientific information was depleted during the war and the need for promptly restocking the shelves. Social and national security public and private health and economic prosperity and well-being depend on the constant extension of scientific knowledge and the effective application of that knowledge.

Now that the military emergency is over, science has an opportunity to return to its normal course of free and unregimented research. The pressure of meeting deadlines and achieving urgent developmental objectives is lifted. Research workers and scientific investigators from the university campus and the industrial laboratory aided materially in the magnificent record our nation made in war production and military achievement. Returned now to the campus and the laboratory on release from wartime responsibilities and occupations, they are more research minded than ever. Interest in research is being given further impetus by government and industry, which are turning to universities, professional schools and technologic institutes for assistance in their postwar reconversion programs.

The situation is made more acute by the critical shortage of scientific and technical personnel and the need for developing a new crop, grounded in fundamentals and trained in research procedures. This new supply of qualified scientists to meet the needs of the future as well as of the immediate present must come from the universities and professional schools. At the same time these institutions are expected to continue as centers of basic and fundamental research. During the past several years, largely for war purposes and the national security, we have been using up our storehouse of fundamental knowledge faster than we have been adding to it.

American science faces a challenging future. Whether we are to enter on a rich era of productive research, profiting from our wartime experiences and capitalizing on the present research consciousness among scientists and the public generally, will depend to a large extent on the philosophy behind our university research programs and the administration of those programs. Of direct concern to university administrators and scientists engaged in the formulation and conduct of research programs is the policy or procedure to be followed in handling the results of scientific investigation.

The public welfare, educational objectives, direction of scientific thought and advance of knowledge are all involved. If science is to be mobilized for peacetime purposes as effectively as it was for war and we are to enter on a rich era of productive research, sound policies and procedures must be developed.

As a service to American higher education and to the scientific fraternity, the National Research Council has been making a comprehensive study of this problem. As a first step, a factual survey[2] is being made of the prevailing policies, practices and procedures in educational institutions and nonprofit organizations for the administration of patentable results of scientific research, with a view to the early publication of the findings for the information and guidance of all concerned. Through correspondence, conversations and visits to university and other research centers, information has been assembled concerning existing practices and pres-

From the National Research Council.

1. Dale, H.: Academic and Industrial Research in the Field of Therapeutics, Science 77:525 (June 2) 1933.

2. Palmer, A. M.: University Patent Policies, Association Am. Colleges Bull. 33:167 (March) 1947.

ent thinking in administrative and scientific circles, about research policies and patent management programs.

ATTITUDE TOWARD MEDICAL PATENTS

An important—and controversial—aspect of the patent problem in universities and medical schools is concerned with what to do with the patentable products of scientific research that affect public and individual health, particularly discoveries and inventions of a medical, pharmaceutic, therapeutic or hygienic nature. Research scientists, physicians, university administrators, government officials, patent attorneys and industrialists have all given considerable thought to this problem and its relation to the public welfare.

Whether patents on medicinal discoveries and foods are in the public interest was the basis of a joint symposium presented before the Division of Medicinal Chemistry, Biological Chemistry, and Agricultural and Food Chemistry of the American Chemical Society in 1937.[3] The American Medical Association held a conference on medical patents in 1939.[4] Various other groups have given consideration to the subject through the years, and the National Research Council has on several occasions held conferences on patent problems at which medical discoveries have been an important item.

Those universities that have comprehensive patent policies usually include within the scope of general over-all policies discoveries, processes, developments and inventions which may affect individual or public health. A few provide specifically for a different treatment of medical discoveries, designed to discourage patenting except when it is considered necessary in the public interest and then without consideration of profit, either to the individual or to the institution. A considerable number have no fixed policy; when cases arise, they handle each one individually, usually without following any uniform pattern except, as a general rule, to discourage investigators from seeking patents.[5]

The prevailing practices of educational institutions, especially those with medical faculties, are influenced to a considerable extent by the traditional attitude of the medical profession as to the ethics of patenting medicinals and medical appliances. Such an attitude, however, does not necessarily preclude patenting a new process or discovery in the public interest. Yet many scientists working in this field take the position that the results of their research, both patentable and otherwise, should be shared "without fee or stipulation." In so doing they often fail to differentiate between patenting for personal gain and patenting in the public interest.

The principles of medical ethics, enunciated by the American Medical Association, say plainly:

> It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is equally unprofessional by ownership or control of patents or copyrights either to retard or to inhibit research or to restrict the benefit to patients or to the public to be derived therefrom.[6]

Nevertheless, the American Medical Association, by action of its House of Delegates in June, 1914, has given permission to the Board of Trustees of the Association "to accept, at their discretion, patents for medical and surgical instruments and appliances and to keep these patents as trustees for the benefit of the profession and the public, provided that neither the American Medical Association nor the patentee shall receive remuneration from these patents."[7]

The view has been expressed by some scientific investigators that no patents should be taken out for discoveries or inventions in the medical field which may affect individual or public health and that the control should be left to legislative action. This aversion toward the patenting of medical discoveries is well illustrated by the following statement:

> It should not be necessary . . . to invoke the ethical considerations which seem to many of us to be incompatible with the patenting of principles or methods involved in the maintenance of individual or public health. It seems to us probable that no code of ethics has ever developed from purely abstract considerations, and that in every case where a strong feeling of propriety of action has been transformed into a tradition of behavior, there has been behind it some tangible purpose. Standards of behavior which have developed in all things connected with medicine have sprung from a recognition that there is a sharp line of differentiation between those forms of activity which deal with health and those which are purely commercial. The invention of an improvement in the mechanism of automobiles, or of a shoe-buckle, concerns matters of convenience or luxury, and can be dispensed with easily by those who are forced to do without them. The relief of the sick and the prevention of unnecessary sorrow by the maintenance of individual and public health are matters in a different category. As soon as we are in possession of the knowledge of principles or methods which can contribute to these purposes their free utilization becomes a public necessity; and any procedure which inhibits their most rapid and effective application to the needs of the community would seem to us as unjustified as the cornering of the wheat market or the patenting of the process of making bread.[8]

Through the centuries medicine has given freely of its discoveries for the benefit of mankind, and they have become the property of all who cared to employ them in the control of disease. However, as medicine has become more complex, involving specialized investigation in the fields of biochemistry, physiology, physics and associated branches, great numbers of fulltime research scientists in the hospital and the laboratory work with members of the medical profession but are not bound by the same ethical principles.

Many important medical preparations and technics have been developed in university laboratories, often at considerable expense to the institutions. It will be recalled that it was in the laboratories of the University of Toronto that the possibilities of insulin as a treatment for diabetes were discovered in 1921 by a team of biochemists, physiologists and a practicing physician. It was at Columbia University that a member of the pathology department discovered the antirachitic properties of vitamin D. The use of the ultraviolet ray to enrich the vitamin D content of foods and medicinal products was developed by a biochemist at the University of Wisconsin. It was also a biochemist, working in the laboratories of St. Louis University, who discovered the therapeutic properties of estrone ("theelin"). Similarly, iodobismuthite ("iodobismitol") was developed at Stanford University and thyroxin at the University of Minnesota.

Patenting such discoveries is not considered to be wrong in itself, but to be desirable in order to control them in the public interest. An editorial on "Patenting

3. Russell, H. L.: Are Patents on Medicinal Discoveries and on Foods in the Public Interest? Indust. & Engin. Chem. 29:1315 (Nov.) 1937.
4. Booth, A. W.: Report of the Conference on Medical Patents, Held Under the Auspices of the Board of Trustees of the American Medical Association, March 16, 1939; Supplementary Report, J. A. M. A. 112:2163 (May 27) 1939.
5. Palmer, A. M.: Patents and University Research, Scient. Monthly, 66:153 (Feb.) 1948.
6. Principles of Medical Ethics, Chicago American Medical Association, 1937, chap. 3, article 1, sect. 5.
7. Fishbein, M.: Medical Patents, Indust. & Engin. Chem. (Indust Ed.) 29:1315 (Nov.) 1937.
8. Zinsser, H.: Problems of the Bacteriologist in His Relations to Medicine and the Public Health, J. Bact. 13:147 (March) 1927.

Therapeutic Agents," which appeared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in 1919, contains the following pertinent remarks[9]:

. . . there are occasions when it is wise, if not necessary, to obtain a patent in the interest of the public and, in the case of surgical instruments and medicines, of the medical profession. In certain instances it is absolutely necessary that the article produced shall maintain a definite standard of quality and purity—and, it may be added, shall be sold at a reasonable price. Enterprising pharmaceutical manufacturers have usually been ready to appropriate the results of scientific research by investigators or therapeutic measures suggested by practising physicians. Not infrequently, in such instances, the desire for financial gain has caused the marketing of such products with extravagant, if not false, claims as to their value. Yet the patent laws may be used so as to protect and to benefit the public and the medical profession. In research laboratories, work is being carried on resulting in the production of new therapeutic agents. It is important that these agents shall be so controlled that they may be made available without subordination to commercial interests. It has become practically necessary, therefore, for research workers to protect their products in the interest of the public welfare and scientific medicine. It has not been an easy matter to decide how best to bring about the desired results.

In a report on "The Protection by Patents of Scientific Discoveries," made in 1934, a committee of the American Association for the Advancement of Science summarized the situation as follows[10]:

The committee recognizes the fact that there exists in many quarters a strong feeling against medical patents. This feeling seems to be largely due to the unpleasant memories of the past exploitation of the public by means of "patent medicines" which had doubtful or decidedly harmful effects on the public health. Government regulation during recent years has eliminated a great deal of misrepresentation and false claims in regard to this class of goods. The Patent Office, moreover, now seldom issues patents for the old-fashioned type of patent medicines. It is therefore an error to class all medical patents with the former types of "patent medicines."

The mere fact that medical patents offer the means of making profit is not a sufficient reason to condemn them entirely . . . patents have other very important uses. Moreover, we must bear in mind that it is possible to obtain profits from medical discoveries in many other ways without resorting to patents if the medical investigator is so inclined. We must, after all, depend upon the integrity and character of the investigator when important medical discoveries are involved.

The ideal to strive for may perhaps be that no medical discoveries should be subject to any restrictions whatsoever. In our present commercial economic system, however, and with existing laws and business practises such an ideal is difficult to attain, since not all may live up to it. We must, therefore, guide ourselves in accordance with the economic situation that exists today and seek to attain our ideals through the existing economic machinery rather than to ignore it entirely on the ground of ethical consideration alone.

The act of securing patents for medical discoveries is not unethical in itself, and such act does not necessarily mean that personal profits are sought. Under our existing laws and commercial practises dedication to the public of important medical discoveries by mere publication is not always the best procedure to follow. The public can often be best served by receiving the benefits of a new medical discovery under the control of a patent. . . . Through making a medical discovery it may become the duty of the investigator to make sure by means of patents that the public will actually benefit from his discovery and not be subjected to unfair exploitation by others who may commercialize his discovery.

The committee suggested further that, although in general the ethics of the medical profession may properly prohibit its members and their close associates from obtaining any monetary profits through medical patents, the following possible conditions may sometimes demand recognition.[10]

(*a*) Where in introducing the medical invention commercial large scale operation is necessary involving expensive equipment and large personnel. In such case the manufacturer must be assured by means of patents that he will not meet with ruinous competition and thereby lose his initial investment in an enterprise for producing a new medical product or apparatus. Before placing a new product on the market a great deal of preliminary work, expensive equipment and salesmanship are necessary, requiring a considerable outlay of capital. No manufacturer would be willing to go to this expense unless he knew that he could obtain an adequate return on this investment through patent protection.

(*b*) Where the expenses incurred in developing the invention were unusually large and the funds were supplied by individual investigators or organizations without the assistance of any public funds. In such cases there is a legitimate reason for recouping the expenses involved in the research. The public should certainly be willing to pay the actual cost for what it gets.

(*c*) Where a medical invention has been made at a university or similar institution having limited funds for research there may be some justifications in such case for obtaining funds by means of patents for further research of the type which will ultimately inure to the public welfare

In order to obtain a comprehensive picture of the present situation in educational institutions with regard to the handling of patents in this field, a special study[11] was made of the practices of the seventy medical schools on the approved list of the Council on Medical Education and Hospitals of the American Medical Association and of the relation of those practices to the general situation in the universities and colleges with which sixty of those schools are affiliated. It was found that: (1) nine of the university-affiliated medical schools have special policies for dealing with medical patents, several of which are applicable on a university-wide basis; (2) nine others conform to formalized general university policies for handling all types of patentable results of scientific research; (3) the other forty-two have no formal or established policy, either in the medical school or in the university at large, although many of the medical schools follow practices which are generally accepted throughout the universities with which they are affiliated; (4) only two of the ten independent medical colleges have clearly defined policies; the other eight either follow informal policies or have no policy at all.

The complexity of the problem and the wide variation of procedure in handling medical discoveries are clearly indicated in the following resumé of prevailing practices in the sixty approved university medical schools and ten independent medical colleges.

SPECIAL PATENT POLICIES

On recommendation of the Faculties of Arts and Sciences, Medicine, Public Health, and Engineering of Harvard University, the following policy[12] in regard to patents on discoveries or inventions bearing on health and therapeutics has been adopted by the President and Fellows of the University, as a university and not merely a medical school policy, dealing with the subject matter of the research rather than the site of its performance:

No patents primarily concerned with therapeutics or public health may be taken out by any member of the University, except with the consent of the President and Fellows; nor will

9. Patenting Therapeutic Agents, Current Comment, 73:1219 (Nov. 16) 1919.

10. The Protection by Patents of Scientific Discoveries, report of the Committee on Patents, Copyrights and Trademarks, American Association for the Advancement of Science, (Jan.) 1934, p. 20.

11. Included as part of a comprehensive survey of university patent policies conducted by the National Research Council, the findings of which will be published by the Council early in 1948 in a detailed report including in an appendix the complete texts of thirty-seven definitive university patent policies

12. A Statement of Policy in Regard to Patents on Discoveries or Inventions Bearing on Health and Therapeutics, Nov. 15, 1939.

such patents be taken out by the University itself except for dedication to the public. The President and Fellows will provide legal advice to any member of the University who desires steps to be taken to prevent the patenting by others of such discoveries or inventions.

In cases as to which it may be deemed necessary to take out a patent and dedicate it to the public in order to prevent others from obtaining a patent for their own benefit, members of the University are asked to report to the dean of the appropriate faculty any such discovery or invention made by them, with a recommendation as to whether an application for patent should be filed, in order that, if necessary, steps may be taken to obtain and dedicate the patent.

A person making any discovery or invention which he thinks should be patented for any other reason should so report to the dean of the Medical School, giving his reasons in full, for submission to the President and Fellows of the University.

Under the By-Laws and Regulations of the Yale Corporation, it is the policy[13] of Yale University that neither the University nor members of any of its faculties should make profits from inventions or discoveries made at the University, or in connection with its activities, and especially from inventions or discoveries which may affect the health or welfare of individuals or of the public. In 1935 the Board of Permanent Officers of the Yale University School of Medicine adopted the following resolution, based on the premise that the patenting of discoveries applicable in the fields of public health and medicine was becoming an increasingly important and controversial problem of wide implication for the public:

> . . . it is, in general, undesirable and contrary to the best interests of medicine and the public to patent any discovery or invention applicable in the fields of public health or medicine; but if, at any time, any member of the faculty deems it necessary solely for the protection of the public, without profit to himself or the University, to control any invention or discovery by means of a patent, he shall bring the matter before the Prudential Committee for consideration before taking any steps toward patenting.[14]

The Prudential Committee of the Corporation is authorized to deal with each case according to its merits. Although no patent has been applied for by any member of the faculty of the School of Medicine during the last twenty-five years, it is the view of the faculty that this should be the basic policy of a school of medicine with respect to inventions or discoveries which affect the health of individuals, with a view to the protection of the public interest. It would be permissible however, under the regulations of the Yale Corporation, to seek a patent if it seemed necessary in the public interest, for the advancement of learning or to maintain the quality of a patentable discovery. Under these circumstances, the probability is that a royalty-free license would be granted to selected manufacturers who could be counted on to maintain proper standards and price.

St. Louis University has generally followed a hands-off policy with regard to patents resulting from scientific research in its several schools, but a special trustee committee has had under consideration for several years the formulation of a formal patent policy for the University. However, in the School of Medicine it has been the recognized practice since 1930 for members of the faculty and research workers to assign voluntarily, without consideration of individual benefit, their patent rights to discoveries in fields in any way related to medicine and public health to a Committee on Grants for Research created in the School of Medicine for the express purpose of administering patents. This committee was established originally to administer the patent on estrone ("theelin") which was assigned by Dr. Edward A. Doisy and his co-workers to St. Louis University for the benefit of the School of Medicine, the eventual income from the licensing of the patent to be used exclusively for the prosecution of research in the School.[15] The procedure followed in the licensing of this patent has served as the basis for the administration of other patents handled by the committee. As in the case of "theelin," the agreements with all licensees provide that "for the purpose of insuring more adequate public service and of fostering further scientific research through the product, the University desires to control the preparation and marketing of the product through its testing laboratory, thereby assuring a distribution for therapeutic purposes of preparations of dependable and uniform character."

While Johns Hopkins University also officially pursues a hands-off policy on patents resulting from scientific research in its various schools, the attitude of the faculties of the School of Medicine and the School of Hygiene and Public Health is definitely averse to the patenting of any inventions or discoveries which may affect the public health. That attitude is expressed in the following resolution, which was adopted by the Advisory Board of the Medical Faculty in 1933[16]:

> The Advisory Board of the Medical Faculty considers it undesirable for any member of the Faculty or anyone connected with the School of Medicine to patent any invention or discovery which may affect the public health; but, in case any member thinks it desirable to secure a patent, he should bring the matter before the Advisory Board before so doing.

At the University of Cincinnati it is the policy with respect to inventions, discoveries and developments relating to medicine, therapeutics and hygiene:

> . . . to discourage the acquisition of patents by faculty members, students or other persons connected with the teaching and research staffs or by any agency of the University, except when the control provided by patent rights appears to be necessary or desirable in relation to the public welfare. Therefore, it is strongly recommended that patentable inventions and discoveries of this type as well as investigative work that is clearly pointed toward such patentable inventions or discoveries, be brought to the attention of the dean of the faculty to which the inventor belongs, and by the dean reported to the administrative authorities of the University, to the end that action, in keeping with the rights and wishes of the inventor and appropriate to the public responsibilities of the University, may be agreed upon. It is understood that such consultation of the inventor with University authorities shall be voluntary in the absence of prior agreement to the contrary, and that the right of the inventor to his invention shall not be prejudiced thereby.[17]

The College of Medicine at the University is guided by this policy and, with a view to discouraging the acquisition of patents, the medical college committee has in at least one instance recommended, after a careful study, that the individual drop his plans to obtain a patent. In general, the right of absolute ownership, by a faculty member or student or other person connected with the teaching and research staffs of the University, of his own inventions or discoveries, whether or not made while using the regular facilities of the University, and the right of such persons to apply for, hold and dispose of patents are recognized as indefeasible. Exception is made in the event that the invention or discovery was made as a direct result of

13. By-Laws and Regulations, Yale Corporation.
14. Minutes of the Board of Permanent Officers of the School of Medicine, Yale University, New Haven, March 25, 1935.
15. Bulletin of St. Louis University, School of Medicine, July, 1931.
16. Minutes of the Advisory Board of the Medical Faculty, Johns Hopkins University, Baltimore, 1933.
17. By-Laws and Regulations of the Board of Directors, University of Cincinnati, pp. 30-32.

a specific research project sponsored and financed by the University or by the University of Cincinnati Research Foundation or by other agencies outside of the University, under a contract with the person concerned, specifying the abrogation of those rights as to that specific project. The facilities of the Research Foundation are available, both to the University and to the individual inventor, for the management of any patents that are taken out.

The College of Physicians and Surgeons at Columbia University observes the policy,[18] established in 1930, that no member of the faculty or staff of the College should take out a patent on any medicinal, therapeutic or health substance or process, unless required to do so under the terms of a contract with the government or other outside sponsor. This policy differs from the general university policy,[19] which provides that in other divisions of the University patents may be obtained through University Patents, Incorporated, a patent-holding agency wholly owned by the University. This agency in turn assigns the patents to Research Corporation for management under an agreement with that organization. The only patent held by any one in the medical faculty is one on vitamin D, obtained by Dr. Theodore F. Zucker in 1924 under an old arrangement with University Patents, Incorporated. The question of patents has been discussed from time to time by the staff of the College of Physicians and Surgeons, always with the same conclusion: that while research is a prominent part of the program of the College, there have been enough unhappy experiences with patents to make the staff unanimous in the opinion that they should not get involved with the problem.

Although procedurally in effect since 1931, a definitive policy[20] with respect to patents on inventions and discoveries, particularly those with medical or public health implications, was not formally adopted by the Trustees of the University of Pennsylvania until 1941. That policy is the result of extended studies by both the faculty and trustees, during which a committee of the faculty went on record in 1933 with the following resolution[21]:

That inasmuch as the University of Pennsylvania, like other similar institutions, is dedicated to education and the increase of knowledge in many fields, it is and should be the policy of the University that any discoveries, inventions or improvements made by it, through the members of its faculties or otherwise, which result, in the field of medicine in the alleviation of human suffering, or in the field of science in promoting in any way the welfare of humanity, should not be restricted by the University, but should be announced to the world so that such benefits may be freely enjoyed by all, and without pecuniary profit either to the University or to any one in its service. The University does not consider it necessary to call upon those in its service to execute formal agreements with it covering the situation, as is the cases in business enterprises, as it is confidently believed that the foregoing principles constitute the incentive and inspiration for their efforts.

That nothing contained in the foregoing resolution shall prevent the University taking out patents at any time in order to protect an investigation prior to the completion thereof, any such procedure to be subject, however, to the principles above set forth in regard to the results of such investigation, when completed, being dedicated to the use of the public without pecuniary profit to the University or to the investigator, and this Committee will authorize the application for such a patent upon consideration of the facts submitted to it in any instance, and when in its best judgment such protection is necessary or advisable for any particular line of investigation.

The Trustees have declared it to be the policy of the University of Pennsylvania that any invention or discovery which may in any manner affect the public health, such as a new drug, process or apparatus intended primarily for medical or surgical use, shall not be patented for profit, either by individuals in the employ of the University or by the University itself. In order to prevent the capitalization and exploitation by others of any such discoveries or inventions and in order to protect the public, it may, however, from time to time be considered advisable to patent such inventions or discoveries with the sole intention of protection without profit. It is felt that this policy, which stipulates that neither the University nor the inventor shall receive profit from an invention or discovery in the medical field, removes the profit motive from medical investigation. In the case of sponsored research it need give nothing more than a head start on his competitors to the financial supporter of the project and leaves the University in the position of being able to obstruct efforts to exploit the public.

It is the general policy of the Medical Branch of the University of Texas, which is somewhat at variance with the patent policy[22] observed in the other units of the University, to allow members of the staff to make their own arrangements with regard to patents which may result from their research work. The Medical Branch, which includes the School of Medicine, will not accept grants from foundations or commercial concerns for the support of research which carry any restrictions regarding patents or any other detail of the research work, apart from its general objective. There is a general understanding that, if a patentable process develops, the person concerned may seek the aid of an outside research foundation or patent management agency, such as Research Corporation, if he so desires. On the other hand, he is free to make patent arrangements with commercial concerns, with respect both to obtaining the patent and to administering it. It is also understood that, if a patent is obtained by a person as a result of research in one of the Medical Branch laboratories and royalties are involved, a proportion of the royalties shall be allocated to meet research expenses in the laboratory concerned. However, this principle is followed on an individual basis.

The Medical College of Alabama does not permit patents to be taken out on discoveries of any drugs therapeutic agents or appliances by members of the faculty of the school. In this respect the policy is generally applicable throughout the University of Alabama, of which the College is a division. Under the general university patent policy, provision is made for the handling of other types of discoveries and inventions through a University Patent Committee. In the event that a member of the faculty of any division of the University makes an invention which is patentable, the University waives all claim to a share in the royalties unless the University has made a substantial contribution in institutional time, money or facilities toward the production of the invention. If the University's contribution is $200 or less, the inventor is under obligation to reimburse the University for such contribution if he derives sufficient profits from the invention to do

18. Minutes of Faculty of Medicine, College of Physicians and Surgeons, Columbia University, Dec. 15, 1930.
19. Research and Patent Policies and Procedures, Columbia University, pp. 11-16, 1944.
20. Procedures for Obtaining Support of Research Programs and Policy with Respect to Research for Private Industry, University of Pennsylvania, pp. 12-13.
21. Palmer, A. M.: University Patent Policies, 1934, pp. 29-30.
22. Patent Policy of the University of Texas (adopted by the Board of Regents on March 24, 1945).
23. Regulations of the University of Arkansas, Sect. 31.

so, even though the patent rights remain the sole property of the inventor. If the University's contribution is in excess of $200, the invention becomes the property of the University and a percentage of the net profits derived from the sale or exploitation of the invention is allotted to the inventor.

GENERAL UNIVERSITY POLICIES

The patent policy of the University of Arkansas School of Medicine does not differ from that of the University,[23] which was adopted in 1945. In formulating that policy the University recognized that it has a responsibility to the state for discoveries and inventions made by members of the staff while engaged in research work as a regular part of their University duties. Such inventions and discoveries, including those which may have commercial application or should be patented in the public interest, are controlled by the University through a Committee on Patents which makes an equitable division of any royalties or profits that may be derived from their sale or licensing arrangements. The adoption of the general university policy was the result of the only experience which the University has had with the patent problem, when a member of the medical faculty developed a new method of producing xanthopterin which was thought to have commercial value but which eventually was not patented.

The University of California has a general university patent policy,[24] adopted in 1943, which applies to all employees of the University, including those in the Medical School. All matters relating to patents in which the University is in any way concerned are administered by a University Board of Patents which has full powers, subject to approval by the Regents of the University, to examine the merits of each potentially patentable project, to recommend the action to be taken, to facilitate patent applications, to protect both the University and the inventor, to arrive at an equitable determination of the rights of all concerned, to accept assignment of patent rights and to administer them in accordance with the best interests of the University, the inventor and the public. Assignment to the Regents of whatever rights the inventor or discoverer may possess in a patent or appointment of the Board as agent of the inventor or discoverer is optional on the part of the faculty member or employee. Any net income accruing to the Regents is devoted, first, to promotion of research within the University and, second, to general university purposes.

In dealing with discoveries and inventions in the medical and pharmaceutic fields the Division of Biological Sciences at the University of Chicago, in which is included the School of Medicine, is governed by the general patent policy[25] of the University as adopted by its Board of Trustees and incorporated in the statutes of the University:

> The University of Chicago's basic policies include complete freedom of research and the free, unrestricted dissemination of information. In view of these policies, the University will not profit financially from research by means of patents, royalties, or licensing agreements. Members of the staff will not be permitted to receive direct or indirect financial returns from patents based on work performed during the period of their employment by the University, or to make arrangements for such returns which take effect after such period. The University will cooperate with industrial organizations by conducting fundamental research projects financed by grants from such organizations, and will make research reports to the grantors, but it will retain the right to publication of the results. The University will not permit its name or the names of its investigators to be used in advertising.

The Division of Biological Sciences had been operating essentially under this policy for several years before the official university policy was adopted in 1943. It was applied in the fields of biology and medicine before that time because of the belief that income through patent royalties should not accrue to the University or its staff from discoveries which have a bearing on the prevention or treatment of disease or the preservation of health. It is recognized, of course, that the patenting of some discoveries may be necessary or desirable for the protection of the public interest or for other reasons. Depending on circumstances the inventor may, with University approval, take out a patent and dispose of it by assignment to a person, firm or organization who has supplied the funds for support of research or to some agency independent of the University, such as Research Corporation. This is done by free assignment, without financial return to the University or the inventor.

The patent policy of the University of Illinois College of Medicine is identical with that of the University,[26] but as a general practice applications for patents are discouraged in the College, although a patent may be sought for the purpose of controlling the quality of a patentable product. Under the general university policy the principle is recognized that the results of experimental work carried on by or under the direction of the scientific or teaching staffs of the University, the expenses of which are paid from university funds or from funds under the control of the University, belong to the University and to the public, and should be used and controlled in ways to produce the greatest benefit to the University and to the public. The practice is, therefore followed of taking out patents on valuable discoveries and inventions which may be expected to have a basic relation to other discoveries or inventions of commercial importance. The patents are assigned to the Board of Trustees of the University for a nominal consideration and the Board administers the rights under the patents in ways to suit the conditions, dedicating the patent to the public or licensing its use. The facilities of the University of Illinois Foundation may be used in the commercial exploitation of the patent rights. The patentee is paid a share of any sum above a nominal royalty that may be received by the University.

Although the University of Kansas School of Medicine has not had any experience with patent problems, the School would follow the general policy[27] of the University and utilize the facilities of the University of Kansas Research Foundation. Under that policy any one who believes that an invention resulting from a research project sponsored by the University should be patented would present the matter to a faculty advisory committee, appointed by the Chancellor of the University, which would determine whether or not the Foundation should prosecute a patent application on the invention. In the event that any sum over and above the cost of obtaining a patent should be received by the Foundation, a fair share of the profits (at least 15 per cent) would be paid to the patentee, and the remainder of the profits would be used to finance the activities of the Foundation and to sponsor further research in the University. In the case of cooperative research sponsored in part by an outside agency, the written contract between the University and the coop-

24. University Regulation No. 23, University of California, Aug. 15, 1943.
25. Statutes, University of Chicago, p. 63.
26. Patents on Discoveries and Inventions, University of Illinois Statutes 44, pp. 16-17.
27. Minutes of the State Board of Regents, June 11, 1943.

erating agency would include a statement that all the results, including inventions, belong to the University and would be so used and controlled as to produce the greatest benefit to the public. If all the costs are paid by an outside sponsor, he would be entitled to have all patents assigned to him, the University reserving only the right to publish all fundamental data of value to science and technology.

The University of Louisville School of Medicine follows the general university patent policy,[28] adopted in 1935, which includes provisions covering both (1) the administration of patents and possible income from such patents and (2) the conditions which should attend inventions or discoveries made by members of the staff of the University. An Administrative Board of Patents, established by and subject to the direction and control of the Board of Trustees of the University, has authority "to accept for and on behalf of the University by assignment or otherwise, either directly or through trustees or holding corporations, patent applications, royalties, licenses, or gifts therein governing discoveries, inventions or processes, when produced by members of the staff of the University by use of University laboratories or otherwise." A patent assigned to the University is administered by the Board in such manner as it may determine, provided that if the patent is sold or royalty for its use is received, one half of the money thus realized by the University would be paid to the patentee and the other half assigned to the University.

A definite patent policy for the entire university, adopted by the Board of Regents of the University of Nebraska in 1946, applies to the College of Medicine as well. That policy was established for the purpose of stimulating inventive genius, encouraging the disclosure for the public benefit of discoveries and new inventions made at the University by its faculty personnel and employees, and defining the rights of the University in returns from resulting patents. The title to a patent on any discovery or invention belongs to the employee, and he is free to develop or handle it in any manner he sees fit, provided that when total net royalties or other compensations are less than $1,000, no payment to the University is required, but when they amount to more than $1,000 and less than $5,000 per year, 10 per cent of the excess of such royalties or other compensations above the sum of $1,000 and less than $5,000 shall be paid to the University, and when they amount to more than $5,000 per year, the royalty to be paid to the University shall be 10 per cent on all the amount above $1,000 and less than $5,000 and 20 per cent on all amounts above $5,000. In the absence of a specific contract to the contrary, the provisions of the policy are incorporated in the employment agreements of faculty personnel and other employees of the University.

The Stanford University School of Medicine follows the general university policy in the handling of patentable results of scientific research in relation to medical and pharmaceutic discoveries. Whenever any member of the staff or other person making use of the laboratories or other facilities of the University makes a discovery or invention, or otherwise believes a valuable invention may result from his research, he is required to communicate that fact to the executive head of his department or school. The matter is then referred to the Patent Committee of the University, which examines into the nature of the discovery or invention and, if in the opinion of the committee it should be protected by patenting, recommends its assignment to the University. The University reserves the right, in its discretion, to manage and exploit all patents assigned to it in the public interest and in such manner as it considers consistent with the best interests of the public and the University. Ten per cent of any gross royalties or other revenues received by the University is paid to the patentee, except when the patentee is a member of an organization whose ethics deny the right of its members to receive such revenues or when the patentee is employed or assigned to work on a specific investigation. After all proper expenses have been met, the remainder is appropriated to the department or school in which the discovery was made for research in the same or related fields. Any revenue in excess of the reasonable needs of such research is placed in a patent pool fund for allocation to the support of other research by the Board of Trustees on recommendation of the President of the University.

The University of Utah Medical School follows the general policy of the University adopted in 1944, which provides that patents should be administered in such a way that the public receives the maximum benefit. In order that the patents may be put to work and developments under them made available to the public, all patent matters, including those arising in the Medical School, are handled by a University Patent Committee. It is believed that the public can best be benefited, in some instances, by actual transfer of patent ownership from the University to supporting companies or agencies and, in other instances, through licensing arrangements by which the control is left with the University. Either exclusive or nonexclusive licenses may be issued, depending on the circumstances. Ten per cent of the net royalties or other revenues received from patents by the University are paid to the inventor, except in cases in which some other division of the income is considered more appropriate. The remainder, after meeting all proper expenses, is allocated to the University Research Fund. The University feels that, in the handling of patents, it should be activated by a desire to benefit the largest number of persons in the most economical and effective way.

GENERALLY ACCEPTED PRACTICES

Certain of the medical schools, affiliated with universities which do not have formal patent policies, follow the general practices of those universities in permitting faculty members and other employees to exercise their own judgment in handling the patentable results of their research efforts but encourage them to utilize the facilities of special research foundations, independently incorporated but closely related to the institutions. These foundations, such as the Cornell Research Foundation, the University of Tennessee Research Corporation and the Wisconsin Alumni Research Foundation, are available to act as patent management agents for the universities concerned, their medical schools, and the individual inventors, through the voluntary assignment of patent rights.

As in the rest of the University, patent matters arising in the Cornell University Medical College are handled through the Cornell Research Foundation. The Foundation was established in 1931 with "power to act in all matters concerned with the acceptance, promotion, management, and protection of all patents in which Cornell University may be interested, with power to take or acquire assignments of patents, to permit commercial development of the same through sales,

28. Excerpts from the minutes of the Board of Trustees, University of Louisville, September 25, 1935

licenses, or the like, and to receive gifts and devices which may be offered in aid of research through the activities of such Foundation."[29] Since 1945 it has been the general policy of the University in making contracts with grantors or sponsors of research programs not to agree to give the grantor or sponsor more than a nonexclusive license under any patents that may result from the research. However, in cases in which the grantor or sponsor pays all expenses of the research, including overhead, the University may in exceptional cases agree to grant an exclusive license or to assign all rights in the patent to him.

Patents resulting from research in the University of Tennessee College of Medicine are handled through the University of Tennessee Research Corporation founded by the University in 1935. The main purposes of the Corporation are the holding of title to patents issued on research work by members of the University staff and the promotion of the use of the inventions and discoveries covered by these patents.[30] The University has no formalized patent policy, but all members of the faculty, including those in the College of Medicine, are encouraged to use the facilities of the Corporation to relieve them from all concern with the administrative and commercial aspects of patent management. It is believed that the major benefits come from the fact that the Corporation serves as a means of protecting results of research from selfish exploitation or suppression by interests which might gain control in some way. Also, the Corporation provides a link between the laboratory and the field of practical application.

In the University of Wisconsin Medical School, as in the rest of the University, the individual research worker is privileged to handle the patentable results of his scientific research in any manner that he sees fit. Some have assigned their inventions and discoveries to the Wisconsin Alumni Research Foundation as their agent and have permitted such profits as have accrued from these discoveries to be compounded through this agency. The Foundation was organized in 1925 "to promote, encourage, and aid scientific investigations and research at the University and to assist in providing the means and machinery by which the scientific discoveries and inventions of the staff may be developed and patented, and the public and commercial uses thereof determined; and by which such utilization may be made of such discoveries and inventions and patent rights as may tend to stimulate and promote and provide funds for further scientific investigation and research within said University."[31] When patentable ideas developed by university faculty members are voluntarily turned over to the Foundation, efforts are made to commercialize them, with the understanding that after the cost of development has been recouped, any remaining moneys are to be employed in the support of research in the natural sciences. With respect to medical discoveries and inventions, the attitude is taken that patents should be secured if a lack of control in the use of the patented article might result in undue exploitation of the public, in lack of uniformity of standardization or in confusion of the public mind as to the inherent values of the product. In certain types of medical discoveries, the Foundation considers itself obligated to administer the patents without thought of any financial return other than that required to safeguard and control the proper use of the product and to provide funds for clinical and scientific work in connection with the discovery.[32]

The College of Medicine of the Ohio State University follows the general practice of the University in using the facilities of the Ohio State University Research Foundation in the handling of patent matters, as well as sponsored research projects. Except in connection with research projects conducted under contracts made by the Foundation, the University has no formalized patent policy other than the provisions in the state statutes that all rights accruing from patentable discoveries resulting from investigations carried out in the University laboratories with the use of University facilities are the property of the University and that the University may assign and transfer its rights or grant licenses as desired. It has been the general practice for the University not to apply for patents in the field of medical research, but rather to disseminate the results of such work in the widest possible way for the greatest public benefit. Patents in this field would be applied for only in those special cases in which the members of the medical profession felt that it was necessary for the protection or welfare of the public.

At Duke University it has been the practice in the School of Medicine since 1937 to assign patents to nonprofit research committees named by the President of the University and to use the revenue from royalties for the support of further research work at the School. Essentially, the plan provides for handling each case on its merits and in a manner that seems best, the procedure generally followed throughout the University. If an investigator has something that should be patented, the legal department of the University draws up an agreement for the assignment of the patent. Any royalties received are deposited to the credit of a special fund and expenditures from that account are made on the written recommendation of the research committee but not for the benefit of any individual person.

The University of Minnesota Medical School follows the general practice of the University, under which all patentable discoveries are referred to a University Committee on Patents, established in 1938. That committee is authorized to receive and consider applications from staff members desiring to secure patents, at University expense and with University control and participation in profits, and recommends to the Board of Regents agreements with staff members for the assignment of patents and arrangements covering the licensing of the patents. One fourth of all royalties are given to the staff member when the patent is in the general field of his employment, and one half when it is outside that general field and University funds and facilities were not used in the development of the patent.

It is the consensus of the executive faculty of the School of Medicine of the Tulane University of Louisiana that professional standards would be violated if either the inventor or the School derived financial profits from patentable devices and processes. Several years ago, when a faculty member who had developed an instrument sought advice on patent procedure, it was decided that neither he nor the School should hold the patent or enter into any arrangement through which there would be a monetary return. Accordingly, the specifications of the instrument were turned over

29. Policy of the Cornell Research Foundation, as contained in the minutes of the Board of Trustees, Cornell University, June 24, 1946.

30. Charter of Incorporation, University of Tennessee Research Corporation.

31. A Decade of Service, Wisconsin Alumni Research Foundation, 1935, p. 1.

32. A Decade of Service, Wisconsin Alumni Research Foundation, 1935, p. 5.

to a reputable manufacturer under an agreement that the price would be held to a minimum. One item in the agreement, under which the inventor relinquished all claim to royalties, was that a reduction corresponding to potential royalties be made in the cost to the buyer. Three instruments have been developed by this faculty member and all three have been handled in the same manner, each with a different manufacturer. The precaution regarding cost of the manufactured instrument was taken in the public interest. The University itself, exclusive of the School of Medicine, has no patent policy except in relation to grants awarded through the University Council on Research. It is understood that, if a project supported by a grant from the Council yields any income, whether from patentable devices or processes or as royalties on books, such income up to the amount of the grant is to be returned to the research fund.

The Washington University School of Medicine has for many years observed the general policy that no pecuniary profit should accrue to any person or stock corporation from a patent on a scientific discovery originating in the School. For the protection of the public a patent may on occasion be taken out, provided the rights are assigned to some nonprofit organization Any profits that might accrue from such a patent would be used for the support of scientific education and research, and not for any other purpose. The University does not have any formal over-all patent policy, although the question has been under study for some time, and the policy of the School of Medicine differs materially from the practices currently followed in the rest of the University, especially in the School of Engineering.

It has been the general practice of Indiana University and of its School of Medicine, neither of which has a formal patent policy although the question has been under study for some time and considerable work has been done on the formulation of a definite statement of policy, not to permit applications on the products of individual or school-supported research. In 1936 a separately incorporated body, the Indiana University Foundation, was established to finance research, handle patents, aid the University in undertakings for which funds were not otherwise available and generally perform such functions as the University, being a state institution, could not do for itself. Many of the contracts made by the University in connection with research grants contain clauses relative to the ownership of the inventions that may develop as a result of the grant. In most of these contracts the University has the option of retaining ownership of the invention in its own name or in the name of the Indiana University Foundation. Some also provide that the donor have a royalty-free license for the manufacture and use of the discovery Members of the faculty have also been permitted to sign contracts with commercial organizations furnishing financial support and to agree in the contract as to the patent rights, with the returns from royalties going directly to the research worker in some instances. It is felt that this plan is not objectionable and is broad enough to encourage substantial support of research studies by commercial organizations and that a stricter policy "would undoubtedly remove considerable support of research programs and would deny medical and graduate students the opportunity of gaining valuable research experience."

While deciding each case on its individual merits, the Western Reserve University School of Medicine follows, as a general rule, the practice of not patenting discoveries in the field of medicine. However, where it seems necessary in the public interest, patents may be taken out on a nonprofit basis. When such patents result from research financed by a commercial concern, the sponsoring concern is given a nonexclusive royalty-free license in its field for a limited time before other firms are granted licenses.

The University of Virginia School of Medicine is in general opposed to the patenting of inventions or discoveries by members of the medical faculty. In the only instance in which the question has arisen during the past ten years the inventor of a minor surgical instrument was advised against taking steps toward securing a patent.

At Temple University it is the feeling of the management, as well as the faculty of the Medical School, that patents should not be sought but that the worthwhile results of their research work should be given freely to the profession.

EACH CASE HANDLED INDIVIDUALLY

At the University of Rochester School of Medicine and Dentistry it is felt that it is usually best to resolve each particular problem as it arises, with a view to protecting the good name of the University and doing everything possible to obviate any criticism that the cost of the patented product to the ultimate consumer or patient was increased because of financial benefit to the University or the inventor.

Although the University of Colorado has no written patent policy, its School of Medicine has in the past followed the unwritten policy of patenting nothing and publishing freely the results of all research and development. It is likely that, in recognition of the attitude of the medical faculty, provision will be made for the licensing of certain patents on a nonexclusive royalty-free basis, as part of a general university policy which is presently under consideration.

At several of the other medical schools each case is handled individually as it arises and, in the absence of a general university or special medical school policy, an attempt is made to work out an equitable solution in each instance. This is the situation in the schools of medicine at Georgetown, George Washington and New York Universities. At the New York University College of Medicine, in accordance with a general procedure followed throughout the University, final action is taken only after consultation with the dean of the executive faculty and the secretary of the University.

The practice is followed at Vanderbilt University, both in its School of Medicine and in the University generally, of bringing inventions and other apparently patentable material to the attention of a University Patent Committee which reviews each case individually and recommends to the administration of the University the specific action and procedure for each case.

Neither the University of Michigan Medical School nor the University as a whole has a clearly defined patent policy, except with respect to contractual research conducted in or through the Department of Engineering Research. Outside of such research projects, each case is decided in the light of its own circumstance.

In the one instance in which a product of research in the University of Pittsburgh School of Medicine was found to have commercial value, a patent was obtained and the trustees of the University accepted the assignment of the patent rights, the income from roy-

alties to be used to support further research without financial gain to the inventor personally.

While the University of Georgia does not have any specific patent policy, proceeds on the sale of several inventions made by members of the medical faculty are added to the budget for equipment and supplies for research in two departments of the School of Medicine.

Neither the Syracuse University College of Medicine nor the University itself has formulated a policy in regard to the handling of patentable results of scientific research. However, in connection with the activities of the recently organized Syracuse University Institute of Industrial Research, an industrial corporation for which research is conducted at the University in cooperation with the Institute will retain patent rights growing out of such research.

At the University of Maryland, which is at present working on a university-wide patent policy, which will apply to the School of Medicine as well, it is contemplated that the recently created State Institute for Industrial Research affiliated with the University will act as a patent management agency and will recognize the inventors among the faculty through royalty payments or some share in the income from patents.

A number of the other medical schools, associated with universities and colleges which do not have formal patent policies, have not had any occasion to develop separate policies or as yet to crystallize their thinking along these lines. The patent problem has never arisen at the medical schools of Baylor, Emory, Louisiana State and Marquette Universities, of the Universities of Oklahoma and Oregon, and of Tufts College and at the Bowman Gray School of Medicine, a division of Wake Forest College.

If the question should arise, the Emory University School of Medicine would follow whatever general university policy is adopted as the result of a current study being made by a committee of the university faculty. Should it become necessary to establish a patent policy for the University of Oregon Medical School, which at present has none, it would be developed in collaboration with the State Board of Higher Education as an over-all policy for the other units of the University as well as Oregon State College, which are all under the same governing board.

At Northwestern University a special trustee committee is currently giving consideration to a general university patent policy which will include medical patents and problems related to the Medical School. A similar situation exists at Loyola University, where the formulation of a university patent policy, that will apply to its School of Medicine as well, is in the discussion stage. A university committee is in the process of setting up such a policy for the University of Vermont, which does not have a definitely formulated patent policy at present, either for the University itself or for its College of Medicine. The same is true at the University of Southern California, where the subject has been under consideration for some time, both on a university-wide basis and with respect to the School of Medicine.

In the other seven university-affiliated medical schools no definite policies for the handling of the patentable results of scientific research have as yet been established, either for the universities themselves or for the medical schools, although the question has been under discussion from time to time at most of them. Included in this group are Boston, Creighton, Howard and Wayne Universities, the State University of Iowa, the University of Buffalo and the Albany Medical College which is embraced with Union College in the Union University system.

INDEPENDENT MEDICAL SCHOOLS

Of the ten independent medical colleges on the approved list of the American Medical Association only two have definite patent policies, although several of the others follow informal policies or general practices. Two of them—the College of Medical Evangelists and Hahnemann Medical College—handle patent matters through separately incorporated nonprofit foundations. The question of patents has arisen at most of the other schools and has been under discussion from time to time without any definite action on policy. On the occasions when the problem has been acute, each case has been settled on its individual merits. At the present time most of these independent medical colleges are giving consideration to the formulation of definitive policies or the revision of existing practices.

At Southwestern Medical College, under a policy adopted in 1945 by the Trustees of the Southwestern Medical Foundation, the corporate body under which the College operates, any salaried faculty member who desires to take out a patent on an original discovery has the option of either dedicating it to the public or assigning it to the trustees of the Foundation without consideration of personal profit. It is contemplated that the Foundation will not grant exclusive licenses on any patentable discoveries assigned to it. The policy has been under study with a view to having certain of the royalties returned to the College, but so far the trustees have taken no action. The question of whether the research worker making the original discovery should receive any benefit from the royalties is also under discussion.

Meharry Medical College has adopted a definite policy concerning patents in connection with a recently initiated research program and the establishment of the Meharry Biological Research Fund, under the direction and control of a special research committee, for the stimulation and development of research at the institution. Under this policy the discoverer receives a percentage (not less than 10 per cent) of the profit from any patent, the exact amount depending on the over-all cost of development. The balance, after the Research Fund has been reimbursed for its investment in the investigation, is held in the Fund for use in the support of further research or for allocation to the College for general educational purposes. The College has not as yet had any experience with patents and does not anticipate in the foreseeable future any patentable products from research now under way.

The Woman's Medical College of Pennsylvania has an informal policy which opposes the patenting, either by the College or by a member of the staff, of any medical appliance or any medical preparation. This is merely an expression of opinion by the faculty; no formal resolution has ever been adopted by the faculty or administration of the College.

The College of Medical Evangelists has no written policy regarding patents resulting from scientific research within the institution by members of the staff, but there is a general understanding that full-time employees should not profit personally from medical discoveries. In a number of instances patentable instruments developed by members of the staff have

been turned over to the Alumni Research Foundation of the College of Medical Evangelists, a nonprofit corporation organized in 1943 primarily for the purpose of raising funds to aid the College in its research program.

In a reorganization which is now under way at Hahnemann Medical College some thought has been given to patent matters and the revision of existing practices. The College has had since 1939 a separately incorporated Hahnemann Research Foundation, organized to accept the assignment of patents resulting from research done under its auspices and to acquire patents by voluntary assignment or gift. In the disbursement of the net income from patents a predetermined share is given to the inventor. The Foundation handles all relations with industrial organizations involving patents, but the College also has, separate and distinct from the Foundation, a research committee made up of members of the college council (seventeen members of the major faculty) to consider, act on and approve all matters relative to research. Any research problems, including those which may involve patents, that may arise within the college faculty are referred to this committee for study. All questions of law and legal relations are within the sole jurisdiction of the trustees of the College.

While the New York Medical College has no fixed patent policy, it is the present practice, when accepting research grants from outside sponsors, to refer problems which may involve patents to their legal department before the contracts are approved or disapproved by the Research Committee of the College. Generally commercial firms have been protected in their patent rights.

The other four independent medical colleges have no established patent policies, although at Jefferson Medical College the question is at present under study by the board of trustees. At the Long Island College of Medicine the problem has been discussed from time to time, and at the Medical College of Virginia possible policies have been suggested at various times, but without any definite action at either institution. The Medical College of the State of South Carolina has as yet developed no policy for handling the results of scientific research conducted at the College.

SUMMARY

The patent question is currently under review at more than half of the seventy approved medical schools, at a number of them as part of new or revised general university policies. Obviously the patent problem is not a settled one in the medical schools and a wide difference of opinion exists among their faculty members as to the ethics of patenting a medical discovery, but in those schools, as in educational institutions generally, the question is being given thoughtful consideration at the present time. Much of the stimulation for the establishment of definitive patent policies stems from problems growing out of research projects sponsored by outside agencies, especially commercial firms. Frequently such practices as are currently followed are concerned solely or mainly with the results of scientific research conducted under grants from these outside sponsors.

At present there is a wide diversity of practice among educational institutions—and even at the same institution—in handling patentable discoveries and inventions growing out of scientific research. There is no common pattern of policy statement, administrative procedure, recognition of the inventor, determination of equities, assignment requirement, patent management plan, distribution of proceeds or protection of the public interest. Nor is there any convenient grouping according to type or size of institution, complexity of university organization or kinds of research undertaken. Existing practices vary from strictly drawn patent policies to laissez-faire attitudes and even an unwillingness to become concerned with patents.

Some institutions follow a hands-off policy, leaving to the individual inventor the responsibility for determining what disposition is to be made of the product of his research efforts. Others take the position that the institution has an interest in all research activity on the campus and have established formal patent policies or follow generally accepted practices for handling any patentable discoveries that may result. Still others observe a definite policy of not having a patent policy. A great many, however, have given little or no consideration to the patent problem, despite the increasing volume of scientific investigation on the campus.

Through the years certain institutions, faced with immediate situations, have formulated more or less definitive patent policies. Yet less than forty such policies have been formally adopted thus far, more than half of them during the past six years. At a number of other institutions practices and procedures are being currently followed which, though not definitely formalized, are generally accepted as applicable to research activities throughout the institution. A few have adopted special policies or recognize general practices for dealing with those results of scientific investigation that affect public or private health. Others have developed policies and practices only with respect to sponsored research.

Many of the formalized policies and most of the prevailing practices are currently under review to meet changing postwar conditions and current considerations in the institutions. The need at this time for critical examination of the whole question of what to do with the patentable products of research is well recognized. At a number of institutions, many of which have not previously had any patent policy, faculty and trustee committees are currently studying the question, with a view to formulating new, or revising existing, policies.

At many institutions each case is decided on its merits in accordance with a general policy or, in the absence of such a policy, by agreement among the parties concerned. A few still feel that they discharge their responsibility by merely publishing the results of investigations or by securing patents and dedicating them to the public. Others accept full responsibility for obtaining patents and administering the patent rights in the public interest. Many exercise control over the patents by issuing licenses and accepting royalty payments, either directly or through agents whom they have designated to manage their patents.

Some recognize the rights and interests of the inventor and share the proceeds with him, either under a prior contractual arrangement or by mutual agreement, but there is no uniformity in the division of the financial return from patents between the inventor and the institution. Even in those instances in which the proportion to be given the inventor is specified in accordance with a general policy, there is a wide variation among institutions in the amount allotted to the inventor. In other institutions the inventor's share is

determined in each case after consideration by a special faculty or administrative committee. A few institutions include patent provisions in their contracts of employment, in some instances for all faculty members, but more often limited to members of the staff whose entire or major responsibility is research, especially contractual research.

At most institutions the compulsory assignment of patent rights is not considered desirable, except when necessary in connection with cooperative or sponsored research. Voluntary assignment is preferred and in many institutions is encouraged and facilitated through procedures and special machinery for handling patents set up within the institution. In many instances the services of an outside organization closely related to the institution and under agreement to act as its patent management agent are employed.

Patent management is a complicated business and is expensive. It requires a high degree of legal competence, administrative astuteness and promotional zeal—a combination of talent not always readily available in an educational institution. The patent search is a specialized technical service. The preparation and processing of patent applications are exacting work for legal counsel. The administration of patent rights demands careful attention to intricate details and constant watch for infringement and interference. The exploitation and disposal of patents, through sale and licensing agreements, require salesmanship of a high order.

It is natural, therefore, that most educational institutions make every effort to avoid becoming directly involved in the intricate legal and commercial aspects of patent management. Some endeavor to accomplish this by adopting a hands-off policy and refusing to handle patents. Others, for legal or fiscal reasons, use the facilities of separately incorporated patent management foundations, independent of, but closely allied to, the institutions by the terms of their charters and by the membership of trustees, administrative officers and faculty on the foundations' boards of directors. Still others have entered into agreements with Research Corporation, an independent nonprofit patent management foundation, to handle patentable discoveries in their behalf, with full protection of their interests and those of the inventors and the public.

A few attempt to handle patents as a part of the routine duties of already established administrative units, such as the comptroller's or business office. Others handle them through specially designated committees responsible directly to the administration or to the trustees of the university. A number have faculty committees on patents, which exist primarily for the purpose of insuring that pertinent institutional regulations are observed. Often these committees serve as advisory bodies and are charged with recommending action on matters that range from the desirability of taking out a patent to the determination of equities.

There are at least three distinct equities or interests involved in patentable discoveries or inventions resulting from scientific research in an educational institution: the inventor or inventors, the institution and the general public; to which must be added a fourth, the sponsor or supporter of the research, in the case of sponsored or cooperative research. When further developmental work is necessary, a fifth interest may be involved, although frequently it is the same as the sponsor or supporter of the original research.

The recognition and protection of these several and diverse interests naturally complicate any individual situation. Self interest, personal rights, professional ethics, institutional policies, employer-employee relations, academic freedom, contractual relations, patent law, business practices, commercial competition and the variables in individual cases are some of the elements that contribute to the problem. Nevertheless, to be equitable and effective a patent policy must provide for such recognition and protection, placing the responsibility where it can be best discharged, most expeditiously and with the minimum of burden on the regular administrative and teaching staffs of the educational institution.

While there is at present a great variation of practice among educational institutions generally and among medical schools, efforts are being made by many of them to formulate definitive research and patent policies. This is a healthy sign and is to be encouraged and facilitated. Especially so far as medical discoveries are concerned, protection of the public interest, as well as the interests of the institutions themselves and the inventors, requires that existing differences be resolved and that some agreement be reached among all the parties concerned.

If the proper safeguards are established, our universities and particularly our professional and technologic schools can contribute, even more extensively than they have in the past, to the progress of science through the most effective utilization of their research facilities and the present short supply of scientific and technical personnel.

VALUE OF CONSERVATIVE MANAGEMENT IN CERVICOBRACHIAL PAIN

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The complaint of pain in the neck, shoulders and extending into the arm is of relatively frequent occurrence. It is believed that the cause or combination of causes which can bring on these symptoms is not widely understood and, therefore, it is the purpose of this paper to review the various etiologic factors that may produce cervicobrachial pain, and in particular to stress the favorable results obtained by conservative treatment.

To avoid confusion, I have arbitrarily omitted consideration of patients with symptoms resulting from pathologic changes in the shoulder such as subacromial bursitis or a tear in the musculotendinous cuff; i. e., conditions which do not cause interference with the neurovascular structures. I wish to emphasize, however, agreement with Freiberg [1] that lesions of the shoulder girdle may initiate cervicobrachial pain by concomitant diffuse muscle spasm accompanying the lesion. Such pain may likewise follow voluntary splinting of the affected arm with depression of the painful shoulder, as so frequently occurs after trauma.

LITERATURE

Under a wide variation in titles the literature contains

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1. Freiberg, J. A.: Scalenus Anterior Muscle in Relation to Shoulder and Arm Pain, J. Bone & Joint Surg. **20**: 860-869 (Oct.) 1938.

numerous references[2] to neuritic pains and vascular disturbances in the upper extremities. The greater number of these papers are concerned with reports on (1) cervical rib, beginning with the original article of Gruber,[3] and later reports of Adson and Coffey[4] and Patterson,[5] and (2) on the scalenus syndrome by Naffziger and Grant,[6] Ochsner, Gage and DeBakey.[7] That other causes exist was brought out by Wright[8] in describing the symptoms resulting from hyperabduction of the arm, and by Falconer and Weddell[9] in reporting the costoclavicular syndrome. Todd[10] has discussed the importance of posture in the cervical rib syndrome. Spurling and Scoville,[11] Michelsen and Mixter[12] described protrusions of intervertebral disks in the cervical portion of the spine. Walshe and associates[13] presented a detailed analysis of pressure effects associated with not only cervical rib but "normal" first rib, as well as emphasizing, as have many writers, the significance of an alteration in the normal topographical relation of the thoracic cage to the shoulder girdle.

DIFFERENTIAL DIAGNOSIS

It is most important to obtain a detailed history with particular reference to the onset of symptoms, distribution of pain and, if present, the degree of vascular change. This is followed by a neurologic and orthopedic examination, including roentgenograms of the cervical portion of the spine.

The roentgenograms permit division of the patients into two groups: (*a*) those with structural abnormalities such as cervical rib, asymmetry and variation of the thoracic outlet and arthritis and (*b*) patients with negative or normal roentgenograms. It is understood that if protrusion of an intervertebral disk in the area of the cervical part of the spine is suspected, this is localized by myelogram study. It is likewise stressed that abnormalities in the roentgenogram are not necessarily the sole cause of complaint, since in the average patient seen these variations have been present for years without causing symptoms, but at least such anomalies are suspect.

Therefore, the diagnosis in patients with cervicobrachial pain, with or without vascular change, can be considered under the headings listed in table 1.

It is not within the scope of this paper to discuss the details of all these factors, as they have been considered in the literature. It is pertinent, however, to comment on some aspects of the diagnostic problem.

Observations on patients at the clinic have convinced me that the causal agent most commonly present in patients experiencing cervicobrachial pain is that here classified under postural defects; in other words, abnormal relationship of the shoulder girdle to the thoracic cage and its attached structures. This applies in both groups; that is, patients with and those without variations from normal anatomy as shown in the roentgenogram. It is believed that sagging and drooping of the shoulders exert tension on the brachial nerve roots and blood vessels, stretching the structures still more tightly over the upper edge of the thoracic outlet.

TABLE 1.—*Diagnosis in Patients with Cervicobrachial Pain*

Group A. Abnormalities Apparent in Roentgenogram
Cervical rib
Abnormal first rib
Cervicodorsal scoliosis
Asymmetry and variation in thoracic outlet
Arthritis
Protrusion of cervical disk shown by myelogram
Group B. Abnormalities Not Apparent in Roentgenogram
Scalenus anticus syndrome
Costoclavicular compression
Hyperabduction syndrome
Causalgia or sympathetic dystrophy
Postural defects; i.e., abnormal relationship of shoulder to thoracic cage

Todd[14] reported that the relative position of the shoulder to the thorax is high in children but at puberty a gradual descent occurs to the adult position. This is more pronounced in the female, in whom the ultimate position of the shoulder is more sloping than in males. This author therefore suggested a relationship between the position of the shoulder and the greater incidence of symptoms of cervicobrachial pain in women and offered an explanation for the rarity before adolescence. Furthermore, as Jones[15] pointed out, when symptoms occur they are most commonly of nervous origin, since the lowest cord of the brachial plexus is more intimately related to a cervical rib, an abnormal first rib or a normal first rib than are the subclavian vessels.

The embryologic development and anatomy of the structures about the upper end of the thoracic cage were summarized by Patterson,[5] who observed that in quadrupeds and human embryos the blood vessels and nerves to the upper extremity, along with the ribs, come off more or less at right angles to the spinal column as the latter is carried parallel to the ground. But as man begins to assume the upright position the upper extremities pull downward parallel to the spine and the brachial plexus and subclavian vessels, on the outside of the thoracic cage, thus straddle the first rib, or if a cervical rib is present, pressure on these structures is increased (fig. 1).

Also, the thoracic cage in quadrupeds and human embryos is broader from front to back, whereas in adult man the cage is broader from side to side. This increased lateral diameter adds to the traction forces on the brachial plexus and subclavian vessels.

In regard to asymmetry and variation in the thoracic outlet, as pointed out by Walshe and associates,[13] in the presence of such anomaly, the thoracic outlet tends to be narrower on one side than on the other, different in outline on one side, and it is often higher on one side. Hence, the plane of the opening is abnormally tilted both in the transverse and anteroposterior directions. It therefore follows that there must be abnormalities in the insertion of the scalene muscles, which are homologues

2. Aynesworth, K. H.: Cervicobrachial Syndrome, Ann. Surg. **111**: 724-742 (May) 1940. Eaton, L. M.: Neurologic Causes of Pain in the Upper Extremities, S. Clin. North America **26**: 810-833 (Aug.) 1946.

3. Gruber, W.: Ueber die Halsrippen des Menschen mit vergleichend, anatomischen Bemerkungen, Mem. Acad. Imp. D. Sc. de St. Petersb. 1869, vol. 12.

4. Adson, A. W., and Coffey, J. R.: Cervical Rib: A Method of Anterior Approach for Relief of Symptoms by Division of the Scalenus Anticus, Ann. Surg. **85**: 839-857 (June) 1927.

5. Patterson, R. H.: Cervical Ribs and the Scalenus Muscle Syndrome, Ann. Surg. **111**: 531-545 (April) 1940.

6. Naffziger, H. C., and Grant, W. T.: Neuritis of the Brachial Plexus, Mechanical in Origin: The Scalenus Syndrome, Surg., Gynec. & Obst. **67**: 722-730 (Dec.) 1938.

7. Ochsner, A.; Gage, M., and DeBakey, M.: Scalenus Anticus (Naffziger) Syndrome, Am. J. Surg. **28**: 669-695 (June) 1935.

8. Wright, I. S.: Neurovascular Syndrome Produced by Hyperabduction of the Arms, Am. Heart J. **29**: 1-19 (Jan.) 1945.

9. Falconer, M. A., and Weddell, G.: Costoclavicular Compression of the Subclavian Artery and Vein, Lancet **2**: 539-543 (Oct. 30) 1943.

10. Todd, T. W.: Posture and the Cervical Rib Syndrome, Ann. Surg. **75**: 105-109 (Jan.) 1922.

11. Spurling, R. G., and Scoville, W. B.: Lateral Rupture of Cervical Intervertebral Disks: Common Cause of Shoulder and Arm Pain, Surg., Gynec. & Obst. **78**: 350-358 (April) 1944.

12. Michelsen, J. J., and Mixter, W. J.: Pain and Disability of Shoulder and Arm Due to Herniation of Nucleus Pulposus of Cervical Intervertebral Disks, New England J. Med. **231**: 279-287 (Aug. 24) 1944; correction, ibid. **231**: 490 (Oct. 5) 1944.

13. Walshe, F. M. R.; Jackson, H., and Wyburn, R.: On Some Pressure Effects Associated with Cervical and Rudimentary and "Normal" First Ribs and the Factors Entering into Their Causation, Brain **67**: 141-177 (Sept.) 1944.

14. Todd, T. W.: The Descent of the Shoulder After Birth: Its Significance in the Production of Pressure-Symptoms on the Lowest Brachial Trunk, Anat. Anz. **41**: 385-394, 1912.

15. Jones, F. W.: On the Relation of the Limb Plexuses to the Ribs and Vertebral Column, J. Anat. & Physiol. **44**: 377-393, 1909-1910.

of the intercostal muscles. Furthermore, the raising and asymmetry of the thoracic outlet increase the possibility that maladjustments may occur between the nerve roots and bones as well as the associated muscular abnormalities which tend to contribute to abnormal conditions and hence symptoms. Likewise, it is evident that a stretching effect on the lower brachial trunks of the plexus is influenced appreciably by diminished obliquity of the thoracic outlet, which effect would be exaggerated in the case of cervical rib.

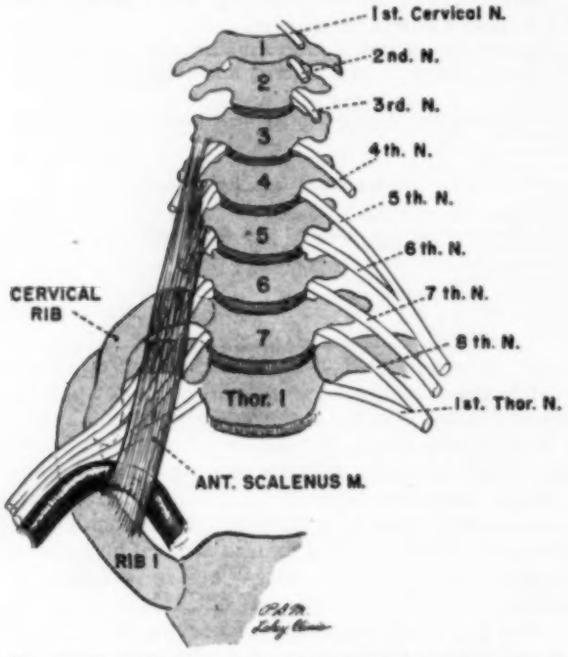

Fig. 1.—Illustrating the relation of cervical nerves to cervical vertebrae as well as the relationship of the plexus and subclavian vessels to the first rib, a cervical rib and the anterior scalenus muscle.

In the growth of the clavicle, obtaining its full development around 20 to 25 years of age, one would then expect a full stretching effect on the lower nerve roots of the plexus to be apparent at that time. If the clavicle projects up and outward, as frequently occurs in men, there will be less constant stretching of the lower brachial nerve trunks than if it projects down and outward as is the case in women. Also, in women there is greater movement of the upper part of the chest than in men, and hence more likelihood that the nerve trunk may be interfered with by the first rib, even if that be normal, and this is more pronounced if cervical ribs are present.

With this general background it is to be borne in mind that the clavicle may be an important factor causing compression of the artery in the presence of an abnormal rib and it probably plays a more significant role in the production of symptoms in the presence of an abnormal rib than is commonly realized, because the clavicle and the abnormal ribs together may constitute a vise in which the third part of the artery as well as the plexus is recurrently gripped. This hypothesis is also supported by the studies of Sampson, Saunders and Capp,[16] who investigated normal and abnormal venous patterns of the anterior chest wall. They concluded that prominent veins in this area were most commonly caused by compression and partial obstruction of the subclavian vein between the clavicle and first rib.

16. Sampson, J. J.; Saunders, J. B. deC. M., and Capp, C. S.: Compression of the Subclavian Vein by the First Rib and Clavicle, with Special Reference to the Prominence of Chest Veins as a Sign of Collateral Circulation, Am. Heart J. **19**: 292-315 (March) 1940.

Degenerative arthritis of the cervical portion of the spine may be the cause for neuritic symptoms in the upper extremities, particularly when there is sufficient productive bone change to cause exostoses or hyperplastic bone to protrude posteriorly into the intervertebral foramina (as shown in figure 2). As emphasized by

Fig. 2.—Oblique roentgenogram of cervical portion of spine. Note arthritic spurs projecting into the intervertebral foramina.

Nachlas,[17] "It is in their passage through the intervertebral foramina that the nerves are particularly subject to irritation." Furthermore, the posterior wall of this canal consists in greater part of capsule, so that when the latter is swollen or distended by intra-articular fluid there is an additional protrusion into the lumen and hence impingement on the nerve root. As this same author pointed out, within the relative protection of the intervertebral foramen the nerve structure is such that there is a particular susceptibility to irritation of the *sensory* neuron because in this area the posterior roots lose the protective myelin sheaths of the axons, while the motor fibers, on the other hand, enter the canal anteriorly, do not lose their sheaths and form a much smaller cable than the sensory root.

There are numerous references to the diagnosis and surgical treatment of protrusions of intervertebral disks in the area of the cervical portion of the spine. In my opinion, cervicobrachial pain is not so often due to protrusion of cervical disks as the reader might assume from perusing the literature. From 1938 to 1946 this diagnosis was proved in 15 patients by members of the neurosurgical service, and this group comprised only 2 per cent of the total number of patients with protrusions of disks found at operation.

Of the cases in which roentgenograms of the cervicodorsal part of the spine were normal, the cases which have received the most attention in literature were classified under the general heading of the scalenus anticus syndrome. From 1935 to 1945, 38 patients have been subjected to surgical treatment; i. e., division of the anterior scalenus muscle, by the general surgical, neurosurgical and orthopedic services. No patient with symptoms corresponding to the generally accepted diagnostic findings of this group has been surgically treated on the latter service in the last two years because my associates and I have become increasingly convinced that the basic cause for symptoms appeared to be

17. Nachlas, I. W.: Brachialgia: Manifestation of Various Lesions, J. Bone & Joint Surg. **26**: 177-184 (Jan.) 1944.

variations from the normal in relationship of the shoulder girdle to the thoracic cage, and relief is obtained by correction of the postural defects.

It is interesting to note that in none of the patients personally operated on was there clearcut histologic evidence to prove the presence of a hyperplastic or unusually fibrotic anterior scalenus muscle. It is difficult to conceive of a type of stimulus that would cause this muscle alone to be hyperplastic to the exclusion of all other adjacent muscles.

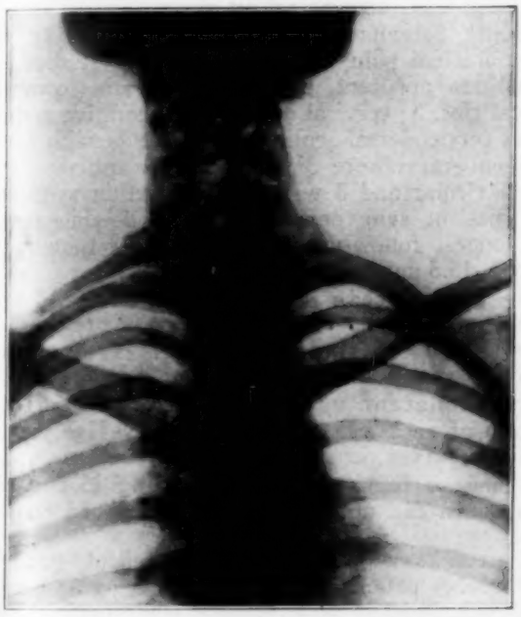

Fig. 3.—Anterior-posterior roentgenogram of cervical portion of spine showing a large cervical rib which articulates with first rib.

Beneficial effects have followed operation in carefully selected cases owing to the fact that one jaw of a vise compressing the neurovascular structures running to the extremity has been removed in precisely the same way that a resection of a portion of an abnormal first rib has relieved individuals in whom cervicobrachial pain was the result of costoclavicular compression, as described by Falconer and Weddell.[9]

I wish to emphasize, however, that in the presence of cervical ribs over 5 cm. in length (Adson and Coffey[4]), and especially those which articulate with the first rib (fig. 3), resection of the anomalous rib is indicated in addition to division of the scalenus muscles.

In 3 cases the basis for the cervicobrachial pain was the hyperabduction syndrome, as described by Wright.[8] It is to be remembered that, as this author indicated, occlusion of the subclavian artery and pressure on the plexus by hyperabduction of the arm is a normal phenomenon on the basis of studies on 150 young adults who, without symptoms, were put through this test. Hence, the anatomic arrangement (fig. 4) that would lead to the presence of this syndrome is present in a high percentage of persons, an important observation inasmuch as the position of hyperabduction is widely but erroneously used as the test for the scalenus anticus syndrome. As reported by Ochsner, Gage and DeBakey,[7] the scalenus muscles are actually relaxed rather than tense in the position of abduction, and hence pain is relieved in the presence of the scalenus anticus syndrome.

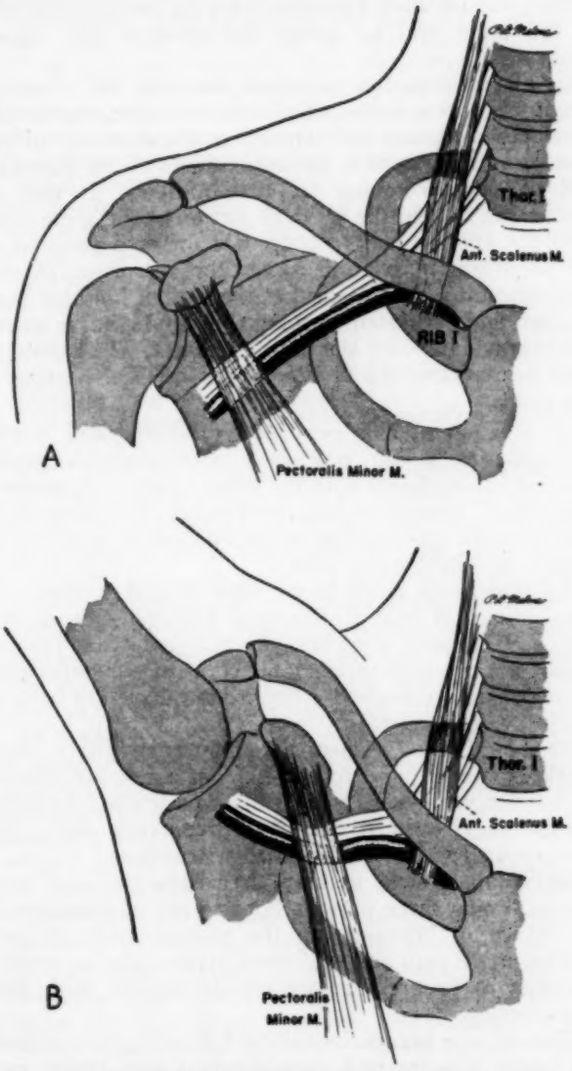

Fig. 4.—The hyperabduction syndrome. Symptoms result from compression of plexus and the subclavian vessels by the pectoralis minor mucle when arm is widely abducted. *A*, arm at side of body. *B*, arm widely abducted. (Redrawn from photographs by Wright.[8])

TREATMENT

The majority of the patients were managed on an ambulatory basis, reporting to the office for instruction in the details of the program of treatment, which is then carried on at home. Thereafter the patient comes in for frequent examinations to observe progress. The exceptions were those persons who exhibited pronounced generalized spasm of the musculature of the neck and shoulders. Confinement to a firm flat bed accompanied by application of moist and dry heat with gentle massage materially expedited relaxation of the muscle spasm. Particularly was this noted in patients with arthritic changes in the cervical portion of the spine. When protrusion of a disk in this area was suspected, as evidenced by radicular distribution of pain in the arm and absence of the usual cervical lordosis in the roentgenograms, intermittent traction to the head relieved pain. In the presence of severe disability and muscle spasm thought to be due to scalenus anticus or the costoclavicular compression syndrome, these patients were also instructed to lie in bed with small pillows under each shoulder, with consequent relaxation of the musculature about the upper portion of the thoracic cage.

Sleeping habits were investigated. In particular, the patient was instructed to sleep with the arms at the side of the body and to avoid abduction of the upper extremity.

In all patients the principal measure for relief of symptoms was a course of graduated active muscle exercises to reeducate and strengthen the elevators of the shoulder girdle, notably the upper fibers of the trapezius and the levator anguli scapulae muscles, as well as instruction to hold the cervical portion of the spine erect with the chin in and to overcome forward position of the shoulders in relation to the thoracic cage. In this connection it is important that the patient hold his head upward and backward, keeping the chin down or in and not simply extending the head backward, which actually may cause increased flexion of the cervical portion of the spine.

In 3 patients with persistent disability and whose roentgenograms did not show abnormalities, gentle traction manipulation with the patient under intravenous "pentothal" anesthesia was performed, with immediate improvement continuing on to complete absence of further cervicobrachial pain.

Eight patients came to us with typical histories of cervicobrachial pain and normal roentgenograms who had been treated elsewhere by the use of a Thomas collar of various materials and types. In our experience these collars are not well tolerated and have not been an aid in overcoming pain.

Many of the women patients, particularly office workers, were found to suffer from a relative vitamin B deficiency, the result of an inadequate diet. Administration of vitamin B complex three times daily, plus dietary instruction, corrected this situation.

Mild analgesics, notably acetylsalicylic acid compound, every three or four hours were of considerable assistance in breaking up the vicious cycle of pain, spasm, more pain and still more spasm, and so enabled patients to progress comparatively rapidly with their exercises.

Finally, the occupational habits that might contribute to faulty posture and muscle stress and strain were reviewed and suggestions were made to correct or omit the type of activity which would tend to produce cervicobrachial pain. Clerks and students who had occasion to spend long hours over a desk with the head and shoulders forward repeatedly noted improvement in symptoms after taking pains consistently to assume an erect posture when at work. This relation of occupation to production of cervicobrachial pain was particularly well demonstrated in a woman of 28, previously a teacher, who had never experienced symptoms until she went to work in a war plant at a task that required her to lift an object weighing about 4 pounds (1.8 Kg.) from below waist level to high above the right shoulder an estimated four hundred times daily. When first seen she was completely disabled, and it was felt that probably surgical treatment would be necessary, inasmuch as the roentgenograms exhibited a cervical rib. Changing her occupation, however, and going on the conservative program as outlined brought dramatic relief in one month's time, and she has remained asymptomatic for eighteen months.

The same program of therapy has likewise produced satisfactory results in those patients coming to us after trauma, such as a fracture of the clavicle or a rib. It is believed that the symptoms were essentially in relation to voluntary splinting and depression of the shoulder due to pain from the injury, causing altered relationship of the shoulder to the thoracic cage that resulted in continuous cervicobrachial pain. Symptoms were relieved when these postural faults were corrected.

It is not my contention that patients with cervicobrachial pain will never require surgical treatment, particularly persons with large cervical ribs. But I do believe that in all the types herein discussed initial conservative treatment is indicated and that in the majority of cases relief of symptoms can be obtained by these nonsurgical methods.

COMMENT ON CASES

Twenty patients with pronounced disability from cervicobrachial pain have been carefully studied. Abnormalities apparent on roentgenograms comprised cervical ribs, 3; cervical disk, 3; degenerative arthritis, 3, and cervicodorsal scoliosis, 1. Patients with normal roentgenograms were 3 with scalenus anticus, 3 with costoclavicular and 3 with hyperabduction syndromes. In 1 patient symptoms developed following trauma. The longest follow-up was seventy-two months; the average, 15.3 months.

The age of this group ranged from 24 to 60 years, the average 39 years. Women predominated over men in the ratio of 3 to 1. Fifty per cent of all patients were employed at tasks which required constant use of the arms or prolonged flexion of neck and shoulders. Thirty-five per cent were housewives, busy with dusting, sweeping, ironing, and so forth. In the remaining 15 per cent, occupation did not appear to be related to symptoms.

The results were classified as excellent, good, fair and poor. A patient was termed as having an excellent result if completely asymptomatic while performing his usual as well as out of the ordinary activities; a patient classified as having a good result experienced some minor discomfort but only when fatigued; a fair result was noted in patients relieved of severe, disabling pain but who continued to experience persistent minor discomfort; no improvement was classified as a poor result. There were 5 excellent results, and it is interesting to note that 2 of these patients had cervical ribs. The other patient with a cervical rib was classified as having a good result. That these patients may eventually come to surgical treatment is an obvious possibility, but they offer a striking demonstration of what can be accomplished by conservative treatment. Of the remaining patients, 11 had good and 3 fair results, distributed as shown in table 2.

TABLE 2.—*Results*

Diagnosis	Excellent	Good	Fair	Poor
Cervical rib	2	1		
Protrusion of cervical disk		2	1	
Degenerative arthritis		2	1	
Scoliosis		1		
Scalenus anticus syndrome	1	2		
Costoclavicular compression	1	1	1	
Hyperabduction syndrome	1	2		
Trauma		1		
	5	12	3	0

The final investigation of a presumptive protrusion of a cervical disk is a myelogram. In the first 2 of the 3 cases, the roentgenographic report was positive, revealing a defect between the sixth and seventh cervical vertebrae. However, the neurosurgical service considered the findings equivocal and in consultation it was decided to try conservative treatment, which has relieved symptoms for twenty-four and eighteen months, respectively. These patients are classified as obtaining a

good result but report for periodic check-up examinations. The third patient was clinically similar to the first 2, and because she was so apprehensive, an initial trial of convervative treatment was decided on. After twelve months she is considered to have a fair result.

Patients in occupations which necessitate constant use of the arms and who are often subject to fatigue should be warned against overexercise. This was illustrated in patient 14, a dental hygienist aged 24, with cervicobrachial pain from a scalenus anticus syndrome. In addition to her regular duties she performed the exercises so assiduously that myositis of the neck and shoulder muscles developed, necessitating a short interval of bed rest to control this complication. Thereafter she went on to complete recovery.

Within the past three months 2 patients have been admitted to the orthopedic service because of disabling cervicobrachial pain which was finally proved due to causalgia or sympathetic dystrophy. In neither instance were we successful in relieving symptoms by the conservative regimen described. Complete disappearance of pain followed cervical sympathectomy by the neurosurgical service.

ABSTRACT OF DISCUSSION

DR. I. W. NACHLAS, Baltimore: The increasing recognition of the diseases in and around the neck with associated brachialgia makes it necessary to devote more attention to the treatment of this syndrome. Unfortunately the surgical procedures that were devised failed to solve this problem. It is noteworthy that with conservative methods Dr. Haggart was able to restore 20 consecutive patients with pronounced disability to usefulness, 17 with good and excellent results. He had no failures in this group. This is a heterogeneous group of illnesses that are grouped together only because of the common characteristics, pain in the neck and radiation down the arm. Obviously one pattern of treatment cannot apply to all of the diseases that may affect this area. The aneurysm of the brachial artery or the long irritative cervical rib may require surgical intervention. It is the common denominator, pressure on the brachial plexus, that permits the consideration of one group of therapeutic procedures. Dr. Haggart has presented many theses that have been propounded to explain these pains, but I cannot subscribe to all of them. If one carefully studies the neurologic radiations and tracks them back to an area where one common lesion can produce them one is greatly assisted in arriving at the diagnosis. My belief is that compression within the cervical intervertebral foramina is responsible in many instances. Hyperextension of the involved area opens these foramina, and it is remarkable how often and how promptly this procedure gives relief to the patient. Dr. Haggart's technics are excellent, but a few additional methods implied by him but not specified may be added: The flexion contracture with its muscle spasm must be overcome. Head traction and hyperextension strapping are useful methods. Some men have found injections of procaine hydrochloride in the muscles of value, but the hyperextension so acquired must be maintained by one of the methods available to orthopedists. The important thing to bear in mind is, as Dr. Haggart indicates, that conservative procedures are usually adequate.

DR. JAMES MCATEER, New York: Dr. Haggart's paper is the best that I have read, and I have looked over all the literature. Dr. Nachlas said that most of the cases are due to arthritic changes in the foramina. Other men have said that cervicobrachial pain is due to the fact that the scalenus triangle has been narrowed down. Dr. Brickner, as far back as 1925, advised that some of these patients should have a portion of the first rib removed. Dr. Nachlas also spoke about the hyperextension. That has been helpful in some cases, but Brown and Kuhn brought out that hyperextension caused 3 cases. Hyperextension might bring about cervical brachialgia. In the Navy, it was found that in a large number of these cases the pain came on after a long period in which the men had no exercise. These men were well trained, brought out in excellent condition and good muscle tone, and then went out to the islands and lay around a long time with nothing to do. Suddenly, a ship would come along, and they unloaded it. Immediately, they complained of pain in the back, shoulders and arms. These men were helped by being put at rest for a time, and were started back on the road to recovery with physical exercises. I concur with Dr. Haggart that exercise is important. In my own experience I have found that gentle club swinging will help. One outstanding case came under my observation, of a violinist, a young lady who practiced for about six or eight hours a day. She wondered why she was getting pain. It was found to be due to her practicing such a long time, so the violin playing was stopped, she was started on physical culture, and put at rest with a pillow between her shoulder blades. A little trick which I use is to take a man's vest and sew a pillow or sandbag about 6 inches wide (15.2 cm.) in the back of the vest. The vest is then put on and fastened, and when the patient lies down, the correct position is maintained, bringing relief.

Dr. G. E. Haggart, Boston: Dr. Nachlas wisely advises a search for the neurologic radiation of pain, because in some instances there is a fairly well defined distribution of pain which indicates that the lesion is in a certain area. However, in many patients, and with the aid of neurologic consultations, we have experienced difficulty in clearly demonstrating the site of the etiologic factor. I believe that the various syndromes presented in this paper are real and, while they are not seen every day, if the ones frequently encountered are listed, a diagnosis is thereby more readily determined. I am much in accord with the use of head traction. Time did not permit details but in 3 patients with normal roentgenograms who did not respond to treatment, gentle traction manipulation with the patient under "pentothal" anesthesia resulted in rapid improvement. The remarks of Dr. McAteer bring up one other point; namely, that it is likewise extremely important that patients not overexercise. Dr. McAteer reports on these men in service with loss of muscle tone who experienced symptoms. That certainly does occur. The opposite situation may take place, however, as illustrated by a dental hygienist of 24 in whom severe pain developed. She performed the exercises so vigorously that myositis developed. Bed rest and a gradual resumption of the exercises resulted in relief of symptoms.

TREATMENT OF MULTIPLE MYELOMA WITH "STILBAMIDINE"

Clinical Results and Morphologic Changes

I. SNAPPER, M.D.

New York

Up to the present time 35 patients with multiple myeloma have been subjected to treatment with "stilbamidine" (4.4′—stilbenedicarboxamidine). In this article experiences which have been collected will be reviewed and morphologic changes in the cytoplasm of the myeloma cells which result from this treatment will be discussed.

CLINICAL RESULTS

A. Dosage.—"Stilbamidine" can be given intravenously. If no veins are accessible the drug can also be injected intramuscularly. After a first injection of 50 mg. and a second injection of 100 mg., each subsequent injection should amount to 150 mg. A total of fifteen to twenty injections is usually sufficient to alleviate the pain. "Stilbamidine" should not be autoclaved or filtered

before use. The crystal-like substance should be weighed out. For intravenous use it is dissolved in 10 cc. of sterile water; for intramuscular use in 5 cc. of a 2 per cent solution of procaine hydrocholoride. Intramuscular injections should be given with a thin and long needle to prevent the solution from being deposited in the subcutaneous fat.

B. Precautions.—Before treatment is started the renal function should be measured. Phenolsulfonphthalein and concentration tests are necessary and the urea nitrogen and creatinine content of the blood should be determined. During the treatment weekly determinations of the blood urea nitrogen are requisite. These precautions must be taken because in patients with Bence-Jones proteinuria renal insufficiency is a common occurrence. Experience has shown that "stilbamidine" often exerts an unfavorable influence on the function of the kidneys which were previously damaged by protein precipitates in the renal tubules.[1]

In patients who have normal renal function and no Bence-Jones proteinuria the drug can be given daily. When Bence-Jones proteinuria exists and certainly when signs of renal damage are revealed, it is advisable to administer "stilbamidine" only every other day. In some patients with pronounced impairment of renal function the injections were given only twice per week. With care it is nearly always possible to prevent deterioration of renal function during the treatment with "stilbamidine."

C. Diet.—The diet should be poor in animal protein.[2] In test tube experiments the action of "stilbamidine" appears to be neutralized by the presence of nucleic acid. It has been found that arginine also, although in much higher concentration, has a neutralizing effect on the action of "stilbamidine." The neutralizing action of nucleic acid, and to a lesser extent of arginine, may well explain why the maximal effect of treatment with "stilbamidine" is obtained only if the diet is poor in animal protein.

D. Complications.—Aggravation of preexisting renal damage by injections of "stilbamidine" has already been stressed. In the doses mentioned hepatic function is not influenced. The same holds true for the peripheral blood picture; that is, hemoglobin, red blood cells and platelets. In no case in this series has "stilbamidine" led to agranulocytosis or thrombopenia.[1]

During the treatment of kala-azar with "stilbamidine," a specific neuropathy consisting of dissociated anesthesia in the distribution of the trigeminal nerve has been frequently observed. This complication sets in one to three months after termination of the treatment with "stilbamidine." The trigeminal neuropathy occurs much more frequently in the treatment of multiple myeloma because the dosage of "stilbamidine" given is much higher than in kala-azar. Usually this neuropathy does not disturb the patients too much. However, in 1 case the facial numbness was accompanied by severe itching of the eyelids which harassed the patient considerably.

E. Results.—In approximately 80 per cent of the 35 patients mentioned, alleviation of pain was obtained. One patient who was treated in February 1945 has become completely asymptomatic and is still doing his daily work as a porter. Improvement of the roentgenologic appearance of the affected bones can be observed occasionally.[3] After the injections of "stilbamidine" are terminated roentgen treatment may be helpful to consolidate the results. Most of the remaining patients suffered relapses of pain within a year after the termination of treatment. Usually the relapses could be remedied, at least partly, by supplementary series of injections. Several patients have died in the course of the two years. As mentioned before, the disease is only temporarily halted. Bence-Jones proteinuria and increase of the serum globulin, if present before the treatment, continue unabated. The results obtained in 12 patients in whom treatment was started more than one year previously are shown in the table. Of these 12 patients 4 died. There are 8 survivors, 5 of whom are ambulant. Their condition may be designated as satisfactory. Five of the 8 survivors have now lived for periods of three to three and one-half years since the first sign of the disease developed; one has survived for six years.

Duration of Disease After Treatment with "Stilbamidine"

Name	Pains Started	Treatment	Bence-Jones Proteins	Abnormal Globulin	Formaldehyde Gel	Result	Condition, April 1946
1. J.G.	Jan. 1944	Feb. 1945	—	2.7	—	Excellent	Living and well.
2. E.W	July 1944	April 1945 June-July 1946 Sept. 1946 Mar. 1947	—	1.6	—	After every treatment pains abated	Condition poor.
3. J.M.		April-May 1946	++	1.9	—	Pains disappeared; died of myeloma of kidney	Died.
4. K.B.	April 1944	April 1946 Sept. 1946 Apr. 1947	++	2.7	—	After every treatment pains abated	Condition good.
5. J.M.		May 1946	++	5.6	++	Pains disappeared; died of thrombopenia	Died.
6. J.B.	Winter 1944	April-May 1946	—	5.3	++	Transverse lesion, cord; pains disappeared; died Dec. 1946	Died.
7. A.E.	July 1944	July 1946 Mar. 1947	—	2.9	—	After every treatment pains disappeared	Condition fair.
8. R.V.	Feb. 1946	July 1946	—	3.4	—	Pains disappeared; relapse April 1947	Condition good.
9. E.R.	Sept. 1945	July-Aug. 1946	—	3.7	+++	Pains disappeared	Condition favorable.
10. G.E.		July 1946	—	3.6	—	Pains disappeared; died of diabetic coma	Died.
11. H.C.	Jan. 1945	July 1946 Mar. 1947	++	7.7	++	After every treatment pains disappeared	Condition fair.
12. S.C.	Oct. 1941	July 1946 Jan. 1947	—	4.1	—to+	After every treatment* pains disappeared	Condition favorable.

*With "pentamidine" (4, 4'—[pentamethylenedioxy] dibenzamidine).

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From the Second Medical Service of the Mount Sinai Hospital.

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MORPHOLOGIC CHANGES IN THE MYELOMA CELLS

It has been reported that after treatment with "stilbamidine" basophilic inclusions develop in the myeloma cells.[4] It has been found that such changes develop after a total of 1,000 to 1,200 mg. of "stilbamidine" is injected.[5] After termination of the treatment with "stilbamidine" these inclusions persist for many months. The longest period during which these inclusions have been followed after the termination of treatment is eight months.

Histochemical examination has shown that these inclusions contain ribonucleic acid—the specific part of the nucleoprotein present in the cytoplasm of myeloma cells—and "stilbamidine." The presence of ribonucleic acid is indicated by the following three reactions.[6]

1. The inclusions stain deep blue with Wright stain and other Romanowski stains, deep red with pyronine and deep blue with toluidin blue.

2. Ribonuclease is a specific enzyme which depolymerizes ribonucleic acid. After ribonucleic acid has been exposed to ribonuclease, the ribonucleic acid does not take the stains mentioned. In bone marrow smears subjected to the influence of ribonuclease, the inclusions can no longer be visualized by Wright stain, pyronine or toluidin blue.

Lanthanum acetate precipitates ribonucleic acid and thus protects the latter against the action of ribonuclease. After the bone marrow smears have been immersed in lanthanum acetate the inclusion bodies can be stained easily, even after they have been exposed to the action of ribonuclease.

3. The inclusion bodies absorb ultraviolet light of 2,600 angstrom units, which is a characteristic of nucleoproteins.

The results of these three groups of tests indicate that considerable amounts of cytoplasmic nucleoprotein or of ribonucleic acid are present in the inclusions. In addition, these inclusions show two other characteristics, indicating the presence of "stilbamidine."

4. If studied under the fluorescence microscope the inclusions can be recognized by a vivid fluorescence.

5. Inclusion bodies can be demonstrated in photographs of bone marrow smears made with ultraviolet light of 3,300 angstrom units.

As "stilbamidine" is characterized by blue fluorescence and absorption of ultraviolet light of 3,300 angstrom units, the last two results[7] indicate the presence of "stilbamidine" in the inclusions.

It may therefore be considered as probable that the inclusions consist of a conjugation product of cytoplasmic nucleoprotein or ribonucleic acid and "stilbamidine."

A correlation exists between the intensity of the disturbance of the protein metabolism of patients with myeloma and the formation of these specific precipitates in the myeloma cells after "stilbamidine" injections.[5] In almost all patients with increased serum globulin injections of "stilbamidine" cause the formation of these inclusions. In about half the patients with Bence-Jones proteinuria but without increased serum globulin "stilbamidine" causes the formation of these inclusions. In patients without Bence-Jones proteinuria and without hyperglobulinemia the development of inclusions has never been observed up to the present time after injections of "stilbamidine."

COMMENT

Since these inclusion bodies are found only in myeloma cells and in none of the other bone marrow cells whether mature or immature, a special affinity seems to exist between "stilbamidine" and the nucleoproteins of myeloma cells—much more than between "stilbamidine" and the nucleoproteins of other cells. As a matter of fact, there is reason to believe that nucleoproteins of myeloma cells are different from the nucleoproteins of other cells. It is probable that nucleoproteins act as enzymes in the formation of proteins by cells. As myeloma cells manufacture abnormal proteins (Bence-Jones protein, abnormal globulins), it seems reasonable to surmise that the enzymes which form these abnormal proteins—that is, the nucleoproteins of the myeloma cells—are different from the nucleoproteins of other body cells. The fact that in patients with multiple myeloma with a severe disturbance of the protein metabolism the development of these inclusion bodies is more rapid and more intense than in patients with multiple myeloma without changes of the protein metabolism seems to favor this contention.

The demonstration and analysis of these inclusion bodies indicates that "stilbamidine" is fixed in the cytoplasm of myeloma cells in concentrations which are considerably larger than the quantities absorbed by other cells. In this way "stilbamidine" may be used in the future to introduce specific substances or specific energies into the cytoplasm of myeloma cells without damaging other cells.

Actually the action of "stilbamidine" in multiple myeloma may perhaps be compared with the influence of female sex hormone in patients with bone metastasis due to cancer of the prostate or with the action of male hormone in patients with bone metastasis due to mammary cancer. In all these instances pains often disappear, at least temporarily, but the disease progresses nevertheless. Occasionally a favorable result of longer duration is obtained.

SUMMARY

In 80 per cent of the cases of multiple myeloma the pains are at least partly relieved by intravenous or intramuscular injections of "stilbamidine" (4,4′—stilbenedicarboxamidine). The disease is at best halted temporarily; relapses are frequent, and Bence-Jones proteinuria and increase of globulin in the serum are not influenced.

The drug should be handled with care in patients who have impaired renal function, as is frequently the case in Bence-Jones proteinuria.

The drug has no deleterious influence either on hepatic function or on the peripheral blood picture.

In the majority of the cases a dissociated anesthesia of the trigeminal branches sets in several months after the termination of treatment. This anesthesia does not lead to dangerous complications, although occasionally disagreeable subjective complaints of itching of the eyes have occurred.

After treatment with "stilbamidine," a specific alteration of the cytoplasm of the myeloma cells is observed, consisting of the formation of precipitates of ribonucleic acid conjugated with "stilbamidine." It is probable that the nucleoproteins of the cytoplasm of the myeloma cells

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are different from the nucleoproteins of any other cells in the body. "Stilbamidine" evidently has a specific affinity for these abnormal nucleoproteins of the myeloma cells.

CONCLUSIONS

Cervicobrachial pain can result from a variety of causes. The disability is often pronounced. From our experience it is believed that appropriate conservative management of these cases will relieve symptoms—and for an indefinite period—in the majority of patients.

ABSTRACT OF DISCUSSION

DR. WILLIAM DAMESHEK, Boston: It is an honor to discuss Dr. Snapper's paper. The work on multiple myeloma which Dr. Snapper has been doing for the last few years may be said to be brilliant. Together with others he has helped to inaugurate a chemotherapeutic era in the therapy of the proliferative disorders of the white cell-forming tissues. You have already heard about the effects of another chemical, namely, nitrogen mustard, which is of distinct value in Hodgkin's disease. "Stilbamidine" appears to be of at least some value in the treatment of multiple myeloma. Even though the results with this material may not be very good or may be of only temporary value, there can be no question that they represent a definite advance and a promise of things to come. The chief feature which Dr. Snapper has demonstrated is that one can alter the inner metabolism of a given abnormal cell by introducing into it a foreign substance of chemical origin. By this substitution of the relatively innocuous "stilbamidine" for the abnormal protein within the plasma cell some sort of beneficial change may ultimately take place, although the results thus far have not been spectacular. By demonstrating metabolic changes within the plasma cells by the most modern technics of histochemistry, Dr. Snapper has made a truly significant contribution. For a long time hematology was a relatively dead subject, dealing largely with morphology. Then it became physiologic and morphology was minimized. Now with such modern histochemical technics as described by Dr. Snapper, we are entering a new morphologic era in hematology. Dr. Snapper has had a remarkable career in several countries and in his years has investigated many different subjects. Wherever it was carried out, whether in Holland, China or this country, his work has cast light on many obscure phenomena. I am glad to welcome him into the field of hematology, which he has already enriched by his contribution to the physiology of the plasma cell.

DIAGNOSIS OF LESIONS OF THE UPPER PORTION OF THE URINARY TRACT

Fundamental Concepts

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The importance of the roentgen examination in urologic problems has become increasingly more evident. There are three methods in general use: the plain roentgenogram of the abdomen, retrograde pyelography and excretory urography. Usually two and often all three methods are necessary to establish and correlate the anatomic, physiologic and pathologic findings which confront the roentgenologist in the examination of the urinary tract.

In the plain roentgenogram of the abdomen one must be familiar with the normal anatomic structures; in the urinary tract, the kidneys are the only structures normally visible, and the degree of visibility is dependent on the amount of perirenal fat.

Retrograde pyelography was introduced [1] in 1906 and consisted of visualization of the pelvis and ureter by roentgenograms made after the introduction of contrast mediums into the ureter. In 1910 Uhle and Pfahler [2] first suggested the use of silver iodide. In 1915 Cameron [3] introduced sodium iodide as a contrast medium; the method then became safe and popular. It is now regarded as indispensable in the investigation of many urologic conditions.

Roundtree was able to visualize the urinary tract by means of large doses of sodium iodide injected intravenously. Later von Lichtenberg [4] and Swick [5] discovered a substance which was nontoxic. After this many advances in excretory urography took place. The preparation of the patient is the same as for other methods of examination of the genitourinary tract. A flat roentgenogram of the abdomen should always be made before the injection of the dye, and after the injection roentgenograms should be made at eight, twenty-five and sixty minutes or variations thereof, depending on the condition under consideration and the individual patient.

Visualization of the urinary tract by this method is dependent on the functional activity of the kidneys in excreting a chemical substance in which is incorporated iodine to render the material opaque to the roentgen ray during its passage through the urinary tract. Pritchard [6] expressed the opinion that the amount of dye should be measured in grams of iodine rather than cubic centimeters of dye and that the amount injected should be proportionate to the patient's weight, age and concentrating power. Children up to puberty can handle twice as much iodine per weight proportion as adults, and infants three times as much. The poorer the patient's concentrating power the more iodine he must have to produce satisfactory urograms.

Intravenous urography is relatively harmless. Aside from the inconvenience of missing breakfast, overnight dehydration and possible transitory pain in the arm, the patient is undamaged and may return to work in ninety minutes. However, a word of caution: All of these dyes contain iodine and in a sensitive patient may lead to serious complications. Various types of sensitivity tests have been devised. Our prophylactic measure is to inject less than 1 cc. intravenously and wait for from one to two minutes before injecting the remainder of the dye. One should always have available an ampule of epinephrine in case of an untoward reaction, and in addition oxygen should be at hand in case of pulmonary edema.

The information gained from excretory urography is chiefly physiologic,[7] and the method gives definite and valuable information of the functional activity of the

From the Research Clinic, Kansas City, Mo.

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kidneys. The normal kidney should excrete the dye [8] rather promptly, and this is the purpose of the roentgenogram made at the eight minute interval. The appearance time of the dye in the urinary tract is a good index of renal function. The maximum visualization will usually be obtained between fifteen and twenty-five minutes. Poor visualization means impaired renal function, and the degree of impairment is indicated by the degree of visualization; when poor visualization is obtained the examination should be continued beyond the sixty minute period, as it is often advantageous to take roentgenograms at two and four hour intervals after the injection. Observance of this rule will often save an examination that would be almost valueless if stopped at an earlier interval. Nonvisualization may indicate: (1) pronounced impairment of renal function; (2) temporary inhibition of renal function; (3) permanent loss of renal function; (4) congenital or acquired absence of a kidney.

In the interpretation of the anatomic, physiologic and pathologic findings from an examination of the upper portion of the urinary tract we have divided the lesions into: (1) congenital anomalies, (2) inflammatory involvement and (3) neoplastic lesions.

CONGENITAL ANOMALIES

Congenital abnormalities of the urinary tract are legion, and our knowledge concerning them has been greatly increased by excretory urography. The most common ones are: (1) congenital malposition [9] (ectopic kidney), (2) horseshoe kidney,[10] (3) duplications of pelves and ureters, (4) solitary pelvic kidney, (5) congenital dilatation of the pelvis and ureters and (6) congenital cystic disease of the kidney.

Lowsley [11] has discussed the correction of some of nature's mistakes by operative intervention. In horseshoe kidneys the ureters usually enter the renal pelvis higher than in nonfused organs. Anomalous blood vessels are almost always present. Normal rotation of the kidneys on their vertical axes is prevented by fusion, and hydronephrosis in these kidneys is probably the direct result of interference with normal drainage. The genesis and relation [12] of anomalies of the kidney [13] can be explained on the basis of embryology.

Congenital [14] cystic disease of the kidney is a condition of considerable interest and clinical importance. Clinically it may present itself in a variety of ways. Evidence of infection of the urinary tract is probably the most common and hematuria may be the initial symptom. Not infrequently the finding of bilateral enlargement of the kidney may be the first indication. The exact origin of this disease is not definitely understood, but it is believed to be due to an imperfect union of the tubules of the kidney with the pelvis. It is frequently accompanied by congenital lesions in various parts of the body. In the roentgen examination there is an enlargement of the kidneys, and the condition is bilateral. The diagnosis is dependent on the visualization of the urinary tract. The pelvis is usually enlarged, stretched and elongated, and the pelves and calices may show evidence of pressure defects from the multiple cysts in the kidney. These defects are characteristic in shape, conforming to the rounded contour of the cyst.

Congenital solitary pelvic kidney is a rare renal anomaly.[15] Some interesting theories have been proposed to explain the etiological factors in renal ectopia and agenesis. Most authors report that common occurrence of genital anomalies which prove a close relation of in the development of müllerian and wolffian ducts. This demonstrates the importance of complete pyelographic information in all cases of genital malformation.

INFLAMMATORY INVOLVEMENT

Inflammatory changes in the upper portion of the urinary tract are usually the result of bacterial infection. While many organisms are capable of producing such infection, none produce roentgen changes that are characteristic with the exception of the tubercle bacillus. A lesion of the kidney which may or may not involve the pelvis is a perinephritic abscess. Prehn[16] called attention to rotation of a calix as a pyelographic sign in the diagnosis of perinephritic abscess. Fever is probably the most common symptom. Pain comes next and is usually localized to the loin. The following roentgen signs are definitely helpful: (1) obliteration of the lateral border of the psoas muscle; (2) obliteration of the kidney shadow; (3) curvature of the spine with convexity, away from the abscess; (4) displacement of the colon; (5) displacement, fixation and limitation of the diaphragm; (6) renal fixation; (7) anterior and outward displacement of the kidney, and (8) rotation of the calix in the upper pole of the pyelogram.

Tuberculosis [17] is the only infection of the urinary tract that produces changes sufficiently characteristic to enable one to recognize the etiologic factor involved. On the plain roentgenogram irregular areas of calcification [18] are suggestive of renal tuberculosis. The early changes are best demonstrated by retrograde pyelography. As the disease progresses the entire pelvis becomes involved. Infection shows a predilection for the renal papillae and in these areas caseation occurs, followed by necrosis. In the pyelogram these areas fill with the contrast medium and appear as small irregular defects just beyond the calix. These are known as areas of cortical necrosis and are characteristic of tuberculosis.

Renal carbuncle [19] is a localized massive suppuration within the kidney due to bacterial metastasis. The symptoms are those of infection, malaise, chills and sweats. Urinary disturbances are usually absent. The plain roentgenogram of the abdomen gives no information. Excretory urography fails to reveal any abnormality. Retrograde studies [20] may show destruction or distortion of a single calix.

Next to infection, hydronephrosis is the most frequent lesion in the upper portion of the urinary tract and may be due to a simple mechanical obstruction, as aberrant vessels, bands of adhesions or to inflammatory changes as the result of infection. One may see on the flat roentgenogram of the abdomen some enlargement of the renal shadow. Excretory urography usually shows some

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impairment of function, and the retrograde reveals varying degrees of dilatation. The earliest change found on the roentgenogram is a loss of detail in the outline of the minor calices with a slight broadening of the major calices and some fulness of the true pelvis. As the disease progresses there may be a complete loss of the minor calices and a blunting or club-shaped appearance to the major calices.

The size of the renal pelvis [21] is less important than determination of its emptying time. It has been suggested that serial pyelograms be taken at three minute intervals to judge the time necessary for the pelvis to rid itself of injected medium. Frequently, sufficient information can be determined to prove poor drainage from the pelvis by taking a ten minute delayed roentgenogram after the pyelogram has been completed. One must remember that dilatation of the upper portion of the urinary tract is an invariable accompaniment of pregnancy.

NEOPLASTIC LESIONS

Intrarenal lesions may be benign or malignant and are characterized by deformity or distortion of the renal pelvis or calices. The location of the lesion may indicate the type of deformity or distortion which is observed. The changes in the pelvic shadow [22] resulting from either benign or malignant lesions may compress, displace and elongate the pelvis and the adjacent calices. They may encroach on or actually invade the pelvis, destroying its normal outline, producing broadening of the calices, pyelectasis and deformity at the ureteral junction.

Benign tumors often explain an irregularity in outline of the renal shadow and may be the cause of a continued and pronounced hematuria. The diagnosis of angioma [23] of the kidney may be suspected when hematuria and a filling defect in the pyelogram occur in a subject under 40. Absence of a tumor mass or roentgen evidence of renal enlargement tends to support this suspicion. Angiomas may be located in any part of the kidney. Hematuria,[24] in the absence of renal tuberculosis, urinary calculus, infection of the urinary tract and urographic evidence of malignant tumors is suggestive of angioma.

Solitary cysts of the kidney were formerly regarded as rare,[25] but since the advent of urography are found much more frequently. Three groups have been demonstrated urographically: (1) whether the cyst is connected or (2) not connected with the calix or the renal pelvis or (3) lies outside of the renal structure.

The flat roentgenogram of the abdomen, excretory urography and retrograde pyelography constitute the principal means of recognizing cysts [22] of the kidney. They may be single or multiple. If the cyst is small and does not encroach on the calices or the renal pelvis, the pyelogram will be normal, but if it is of sufficient size to bulge into the renal pelvis, a filling defect will be seen. When it involves the lower pole, it may cause hydronephrosis. If the cyst arises from the mesial border of the kidney, the calices may remain normal but the adjacent portion of the pelvis becomes flattened under compressive action of the cyst with changes in position of the axis of the kidney, inward displacement of the ureter and displacement and rotation of the renal pelvis; one may also visualize the cyst shadow or there may be calcification in the cyst wall. The solitary cyst does not produce symptoms except by mechanical pressure, and when this is big enough there will be displacement and compression of the renal pelvis and calices.

Adenomas are frequently associated with cysts. Their incidence increases with each decade past middle life. Adenoma and carcinoma [26] are similar in many respects. They occur at approximately the same age, grow slowly and are found together more often than adenomas are found alone. They are rarely bilateral. The cells deviate from normal renal cells in the direction of malignant characteristics. When the adenoma becomes malignant, a fairly well circumscribed, diffusely infiltrating neoplasm of considerable size may result. The clinical manifestations are: pain, hematuria and tumor. The abnormalities noted in the pyelogram are dependent on the location, size and rate of growth and whether or not the pelvis is involved.

The most common renal tumors in adults are cortical hypernephroid [27] carcinomas. In the young [28] mixed carcinomas, usually called Wilm's tumor predominate. The smaller lesions of hypernephroma have a tendency to be encapsulated. The larger ones show little evidence of encapsulation and may infiltrate into the renal pelvis. One of the striking features of hypernephromas is their tendency to invade the branches of the renal vein.[29]

Carcinoma of the kidney may be considered under two groups: (1) those arising from tubular or glandular epithelium and (2) those arising from the pelvic mucosa. Undoubtedly the most important source of carcinoma in the substance of the kidney in the adult is the adenoma.

Carcinomas arising in the renal pelvis [30] are of two types, papillomatous and epidermoid.

Papillomatous growths of the renal pelvis are similar to papillomas elsewhere [31] and have a tendency to become malignant. The tumor may be limited to a calix or it may fill the entire pelvis. Hematuria is almost a constant clinical finding. Chute[32] reported that in 100 proved cases in 44 per cent of those with hematuria there was cancer of the genitourinary tract, and Kretchmer[33] in 833 cases found that 39 per cent were due to lesions of the kidney.

Tumors arising in the pelvic mucosa but growing into the renal substance rather than into the lumen of the pelvis have the structure of inverted papilloma.[34] Such tumors are referred to as epidermoid carcinoma. They may arise from the pelvis of the kidney, are ulcerative lesions and infiltrate the renal substance, and their usual mode of metastasis is through the lymphatics. Carcinoma of the kidney, like carcinoma elsewhere, has a tendency to invade the surrounding structures and in the pyelogram shows little tendency to displace the calices or the

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pelvis of the kidney but does produce irregularity in the pelvic outline with serrated edges indicating invasion. Ackerman [35] described a case of mucinous adenocarcinoma of the pelvis of the kidney in a patient with infection and stones. Hunner [36] stated that cancer of the kidney is often associated with ureteral stricture and that in preliminary diagnostic routine every kidney which is a source of bleeding should be considered cancerous until reasonable proof to the contrary is established.

Sarcoma, in the sense of a malignant tumor arising from the supporting tissue of the kidney, is rarely observed as a primary lesion. It is more probable that a large percentage of cases appearing in the literature under the heading of sarcoma should be classified as embryonal carcinoma or a mixed tumor. Fish and McLaughlin [37] reported a case of lymphosarcoma with the syndrome of recurring abdominal pain, fever and anemia.

Many conditions give rise to tumors in the region of the kidney and on palpation may be mistaken for an enlarged kidney. A palpable mass [38] usually presents a problem in diagnosis. An enlarged spleen, Riedel's lobe of the liver, retroperitoneal cysts, tumors of the descending colon and sigmoid, pancreatic lesions, lymph nodes, mesenteric cysts and tumors arising from the disease of the female adnexa may simulate renal masses. A gastrointestinal examination is a necessity. A shadow on the roentgenogram apart from that of the kidney would be conclusive. Any displacement of the ureter is suggestive of renal tumor, although extrinsic lesions may cause this displacement. An extra renal tumor may deform the pelvis by pressure, while a tumor in the pelvis may not change the contour or outline until it is large enough to produce obstruction.

Shambaugh,[39] reporting on 24 extrarenal masses in the left flank, stated that in 16 instances the left kidney was in a normal position. The extrarenal mass in 1 instance proved to be intraperitoneal, and in the other 15 there was splenomegaly. In 8 cases the left kidney was definitely dislocated; in 6 the mass was due to retroperitoneal tumor, in 3 to malignant lyphomas and in 1 each to neurofibrosarcoma, benign fibroma and a pancreatic cystadenoma. He emphasized that a mass found in the left flank causing displacement of the left kidney will invariably prove to be extraperitoneal.

Many tumors containing ganglionic cells [40] have often been described as arising in the retroperitoneal area. These are as a rule benign tumors, but a few have shown metastasis which seems to have developed from the smaller and less differentiated cells. Lipomatous tumors [41] are characteristic but not frequent growths of the retroperitoneal space. Freifeld [42] has described a lymphoblastoma of the kidney which produced a filling defect in the pyelogram resembling a parenchymal lesion.

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CONCLUSION

The ambition of most radiologists is to determine the type of renal tumor with which they are dealing. This of course would be ideal, but a glance at the great mass of controversial literature on the classification of benign and malignant lesions makes it difficult. The importance of a complete roentgen examination has been stressed. The methods used have been discussed and the findings correlated under anatomic, physiologic and pathologic conditions.

ABSTRACT OF DISCUSSION

Dr. H. Dabney Kerr, Iowa City, Iowa: In the short time at the disposal of Dr. Lockwood, it was impossible for him to go deeply into the diagnosis of renal lesions. In the differential diagnosis of renal tumors one must not attempt to make clearcut differential diagnosis between cysts and neoplasms, because many renal cysts will, after they have been removed, show carcinoma on their interiors. In giving intravenous "dye" for intravenous pyelography, it is important to remember that the absence of visualization of the renal pelvis does not necessarily mean impaired function. That was brought out by Dr. Lockwood but probably not with sufficient emphasis. It has been recently demonstrated by Barclay and his associates that there is a lesser circulation in the kidney which acts as a protective mechanism and which may, therefore, in many instances cause lack of visualization of the renal pelvis when there is actually no pathologic condition in the kidney itself. That one must keep in mind. There is a point which I think perhaps is an advantage in the examination of the kidney and one which my associates and I use, not routinely, but in selected cases, and that is the air pyelogram. When one has a nonopaque stone in the renal pelvis or when one is dealing with a small papillary tumor one may cover it up with the opaque medium, but with air pyelography one can demonstrate nonopaque stones and papillary carcinomas or even cellular debris which may have given rise to some bleeding or pain.

INJECTION THERAPY FOR ANGIOMAS

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Angiomas are tumors of endothelial origin and rarely are they malignant. The neoplastic process arises in buds of endothelial tissue which may grow extensively but do not seem to connect with normal vessels in the surrounding tissue. But one afferent and efferent channel is ascribed to the angioma, and occlusion of either should eventuate in regression of the lesion.

TYPES OF LESIONS

Excepting nevus flammeus ("port wine stain"), a large majority of hemangiomas will spontaneously involute at a relatively early age, but therapy is frequently warranted. This applies to both the superficial ("strawberry mark") and deep ("cavernous") hemangiomas, which two varieties are most commonly observed and frequently occur in combination. Nevus flammeus, nevus araneus (stellate or "spider" angioma), senile angiomas, lymphangiomas and more rare forms are not included in this discussion.

INDICATIONS FOR THERAPY

Most strawberry and cavernous angiomas are either present at birth or appear within the first few months of life. Thereafter they may increase in size only in proportion to the growth of the infant, or independent enlargement may progress for a period of some months. Continued growth of angiomas beyond the age of 1 year is unusual but can occur. In view of the pronounced tendency to spontaneous regression of most

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hemangiomas by the age of 5 to 6 years, some criteria should be established for those deserving treatment. Lesions which interfere with vision, those situated within or about the mouth or in the anogenital region and on pressure areas warrant first consideration. They may impede normal functions or give rise to painful ulceration and perhaps secondary infection of importance. Large angiomas are particularly prone to ulcerate, unless of purely cavernous structure, and regardless of their location. The scars which may then ensue can be disfiguring and of psychologic import in later life. The infrequent lesion which persists all through childhood or into adult life is of the same significance.

It is seldom that hemangiomas give rise to important hemorrhage, interfere with growth or endanger life, except in muscular, visceral or osseous lesions which are not under consideration here.

By far the greatest number of infants are brought for attention by mothers who seek removal of their child's blemish for cosmetic reasons. If none of the aforementioned indications exist and the lesion is not rapidly enlarging, the probability of spontaneous disappearance should be explained. Therapy may still be requested in many instances and is justified if safe and effective.

METHODS OF TREATMENT

Injection therapy for angiomas is not new nor necessarily the best in all cases, but it is simple, efficient, and nonhazardous and has received less emphasis than it deserves. It compares most favorably with other modalities.

Excision is the quickest cure for selected lesions and the results are usually satisfactory. Large angiomas seldom lend themselves to suitable surgical approach, and many small ones are so situated as to make excision unattractive. Surgeons frequently are most reluctant to attack difficult angiomas unless other methods fail. Sclerosing injections and a few months' time, however, often provide a more workable problem for surgical treatment.

Radiation therapy is perhaps the most widely employed method of treating angiomas at the present time. It is effective to a large degree when properly used but carries some hazards and has distinct limitations. Roentgen rays and radium are not generally advised after the age of 2 years. Radium treatments are time consuming and expensive, and require meticulous care. Roentgen therapy is hardly less difficult to administer. Either form of radiation should be avoided on the scalp, around the eyes, lips, genitalia and breasts and over digits, bony prominences or epiphyses; radiation effects on underlying structured must always be considered. It is not generally advisable for extensive lesions anywhere. External radiation, the implantation of radium needles and interstitial radon seed therapy have all been successfully employed but require skill and experience to avoid late radiation sequelae.

Solid carbon dioxide is also used extensively in treating hemangiomas. With sufficient experience, one can develop a technic of application that will briefly freeze a shallow strawberry angioma and speed its involution. It requires skill to accomplish results without the production of scarring. In cavernous angiomas or the mixed strawberry and cavernous types, however, it is extremely difficult if at all possible to achieve any suitable effects without scars.

Surgical diathermy of various types may be employed for special situations, but here again scarring is unavoidable.

PRESENT SERIES

A group of 233 patients with 310 assorted vascular tumors comprised the series under observation. These cases consisted of the following types: Hemangioma 206; nevus flammeus 16; lymphangioma 5, and granuloma pyogenicum 6. Only the 206 patients with hemangiomas will be discussed herein. Table 1 provides the statistical data regarding the ages of the patients and the onset of the 283 lesions presented by these cases.

TABLE 1.—*Two Hundred and Six Patients with 283 Hemangiomas*

Ages of Patients (Years)	
Under 1	128
1 to 5	39
6 to 10	7
11 to 20	4
21 to 40	12
41 to 60	7
Over 60	9
Total	206
Age at Onset of Lesion	
Present at birth	191
Occurred by 3 mo.	61
At 4 mo. to 1 yr.	5
At 1 to 10 yr.	3
At 11 to 20 yr.	3
At 21 to 40 yr.	2
After age 40	18
Total	283

Multiple angiomas occurred in 55 of the 206 patients (26.7 per cent). The duration of lesions was largely a matter of a few weeks to several months, since the great majority of patients were but infants of a few months' age, or small children. There were 18 cases, however, in which angiomas had been present at birth or from early weeks of life until later years; 1 patient was over 70 years old. These angiomas included 5 persisting from ten to twenty years, 10 remaining to the ages of 21 to 40 and 3 for more than sixty years.

Hemangiomas were known to have occurred in other members of the family in 22 cases. Another of the immediate family group was affected in 15 instances, a more distant relative in 4 cases and 3 patients had both near and far kin with angiomas. A homozygous twin was without lesions in 1 case and a heterozygous twin was unaffected in another instance.

Six patients with angiomas present at birth and persisting for some years had noted growth of their lesions only after periods of three to twenty years. Three women had observed distinct growth of their lesions during pregnancy; 1 noted this phenomenon twice. Trauma was thought to be associated with enlargement in 1 case of this group and also in 4 cases in which angiomas developed later in life.

There was no consistent association of hemangiomas with other tumors or with any given type of disease. Eight patients were afflicted with atopic dermatitis; 2 gave a history of convulsions (not epileptiform); 1 had celiac disease. Five patients had been born prematurely.

The types of hemangiomas encountered in the 206 patients and the locations of their 283 lesions are given in table 2. The strawberry and cavernous lesions were about equal in number, although strawberry elements were also mixed with more than half of the deeper lesions and thus entered into over three fourths of the total. Twenty strawberry marks displayed mature-appearing veins radiating out from the periphery; five were associated with changes of the port wine type.

A word of explanation is due for the senile type of cavernous angiomas. These lesions are not the ruby red, superficial, usually small and frequently multiple angiomas so often observed on the aging integument. They are rather a sharply contrasting type of dark

bluish, domed, cavernous tumor more often found about the head than elsewhere. The 18 lesions in this series occurred in 13 patients whose average age at onset was 57 years; the mean duration of their lesions was five

TABLE 2.—*Two Hundred and Six Patients with 283 Hemangiomas*

Types of Lesions		
Strawberry hemangiomas		140
Cavernous hemangiomas		
Cavernous element only	45	
Cavernous and strawberry	80	
Cavernous of senile type	18	143
Total		283
Sites of Lesions		
Scalp		34
Face		
Forehead and cheeks	45	
Eyelids	18	
Nose	8	
Ears	3	
Lips (cutaneous)	5	79
Neck		8
Arms		24
Hands		6
Trunk		79
Legs		22
Feet		2
Mouth		
Lips (mucous membrane)	7	
Gingiva	2	
Tongue	8	
Palate	1	
Buccal	5	23
Anogenital		6
Total		283

years and two months. These eighteen senile cavernous angiomas were found on the face in 6 instances, on the mucous membrane of the lip, tongue or mouth 11 times and once on a thigh.

When the 283 hemangiomas were segregated in accordance with size, their longest diameters were as follows: up to 1 cm., 73 lesions; from 1.1 to 3 cm., 133; from 3.1 to 5 cm., 45; from 5.1 to 10 cm., 19, and over 10 cm., 13. The largest of all was in a clinic patient aged 37 years; this lesion consisted of practically continuous angiomatous changes affecting nearly all of one lateral half of the trunk and the posterolateral aspect of the corresponding thigh. She had first been observed at the age of 5 years, at which time the involved skin was completely covered with a mixed profusion of strawberry and port wine marks plus many underlying cavernous angiomas, all of the abnormalities having been present since birth. When she was called in for examination at the age of 37, all of the cavernous portions had disappeared and many of the strawberry marks were gone; all of the nevus flammeus element remained unaltered according to descriptions in the record and the patient's statement. No therapy had been administered. This case was a perfect example of the so-called neurocutaneous syndrome, but no neurologic aberrations were demonstrable. Two private patients presented the next largest areas of involvement; both were infants under 3 months of age. One lesion included an entire side of the head and neck, extending below the clavicle inferiorly and half obliterating the curve of the neck laterally; the other reached from the base of the neck across the shoulder and throughout the upper extremity to the fingertips, including all aspects. Both had combined cavernous and strawberry elements.

Ulceration had taken place prior to treatment in 27 of the strawberry angiomas and in 22 of the mixed cavernous and strawberry lesions. No purely cavernous hemangiomas broke down at any time. Among the 49 lesions which had ulcerated, 15 involved episodes of hemorrhage; 6 of these were in the mouth or on the lips and 5 were in the anogenital region.

Previous therapy had been administered for 60 of the 283 angiomas reported herein, as delineated in table 3. The results of prior treatment are obviously no indication of the usual efficiency of those methods employed, since the successfully treated patients would not seek further attention. Nevertheless the failures illustrate some of the disadvantages of these modalities. One

TABLE 3.—*Sixty Angiomas Treated Prior to Observation*

Type of Therapy	Successful	Failure
Surgical	4	8
Roentgen ray	2	11
Radium	3	8
Solid CO_2	3	9
Surgical diathermy:		
Coagulation —7		
Cautery —3	—	10
Sclerosing injections	—	2
	12	48
Total		60

surgical failure was so classified because of keloid formation. Three lesions treated with roentgen rays and 2 treated with radium revealed irradiation sequelae in the form of atrophic scars with telangiectasia and pigmentation. Seven of the 9 lesions in which carbon dioxide treatment was a failure were conspicuously scarred, and the other 2 had been dormant lesions until frozen and then began to grow. All of the lesions treated with coagulation and cautery were notably scarred. In the 2 lesions in which injection had failed inadequate sclerosing therapy had been administered some years earlier and had been abandoned prematurely.

RESULTS OF INJECTION THERAPY

There was no selection whatever of the lesions to be treated by sclerosing solutions. In many instances therapy was requested even after the patient or the mother had been advised that no attention was necessary. A small group was left untreated because of previous measures that were obviously going to become

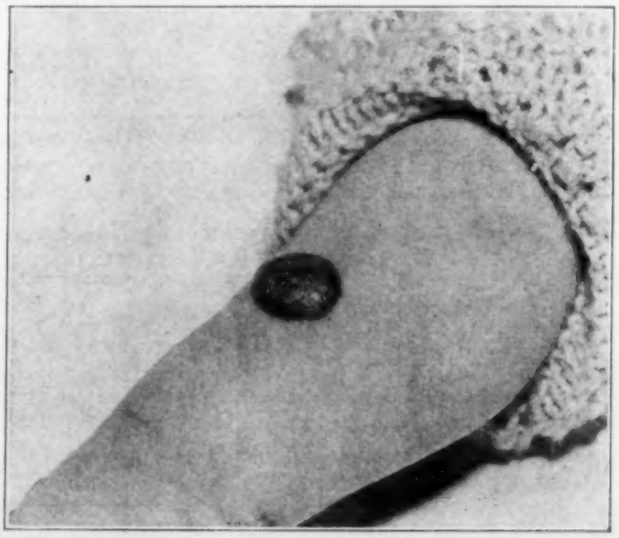

Fig. 1.—T. M. aged 5 months. Showing strawberry hemangioma 1.8 in. in diameter. Eight injections were given in six months.

successful or because of accepted advice that therapy was not essential. Table 4 shows the division of the series by treatment cases, observation cases, those lost, and the length of follow-up. No patient was considered adequately observed unless the follow-up period was six months or longer, even though progress seemed satisfactory; those in the latter category were arbitrarily classed as lost along with those who actually disappeared

from observation too soon. The longest period of follow-up was eight years and three months (two patients with two angiomas apiece).

TABLE 4.--*Two Hundred and Six Patients with 283 Hemangiomas*

Sclerosing injections	146	190
No therapy	37	67
Lost to follow-up	23	26
Total	206	283

Average Time Followed
34.8 mo. per patient
and
35.8 mo. per lesion

In calculating the effects of treatment, an arbitrary estimation of relative success was followed. A good result was defined as 75 per cent reduction in size within one year or complete disappearance of the tumor by the end of observation, and with no more than insignificant scarring. A fair result was 50 per cent decrease in one year, or 75 per cent in two years, or noticeable scars except in strawberry marks over 5 cm. in size. Poor results were 25 per cent resolution in one year, or not over 50 per cent during the time followed, or scars in small lesions. Any lesion less responsive was a failure. Changes in color were largely ignored in estimating the effectiveness of sclerosing injections. The rate of fading was so irregular as to preclude reasonable categories of results of therapy. In many instances the color remained for considerable periods of time after lesions were otherwise obliterated; a halo of irregular blotches was not infrequently visible for many months at the periphery of an otherwise completely resolved strawberry mark.

TABLE 5.—*Effectiveness of Sclerosing Injections in 190 Hemangiomas (164 Patients)*

	Results Correlated with Age of Patient				Results Correlated with Duration of Lesion			
	Good	Fair	Poor	Failed	Good	Fair	Poor	Failed
1 to 5 mo.	70	20	2	—	69	19	1	—
6 to 11 mo.	26	17	1	—	21	16	1	—
1 to 5 yr.	13	3	1	1	26	8	3	2
6 to 20 yr.	4	3	5	1	5	5	4	1
Over 20 yr.	9	6	2	6	1	1	2	5
Subtotals	122	49	11	8	122	49	11	8
	Total.....190				Total.....190			

A satisfactory outcome was obtained in 90 per cent of the lesions treated by injection; 64 per cent were classed as good and 26 per cent as a fair effect. A poor issue ensued in 6 per cent; only 4 per cent were failures. The results of injection therapy in the 190 treated angiomas were determined from various aspects. Its effectiveness according to the age of the patient, the duration of the lesion, and the location, size and type of hemangioma are portrayed in tables 5, 6 and 7. It is at once evident from these tables that the results are more satisfactory when treatment is instituted in the first few months of life. The same is also seen to be true when therapy is utilized in lesions of short duration, regardless of the patient's age. It is apparent that the size of a hemangioma is of some prognostic import, since the larger lesions were progressively poorer in response. In regard to types of tumors, mixed strawberry and cavernous lesions gave the least satisfactory results and all varieties of cavernous angiomas fared worse than the simple strawberry marks. The location of the tumor appeared to have the greatest significance, since the largest number of poor results and all of the failures occurred on the face or in the mouth. An unsatisfactory outcome occurred in 16 per cent of face lesions and 26 per cent of those in the mouth.

TABLE 6.--*Effectiveness of Sclerosing Injections in 190 Hemangiomas (164 Patients)*

Results Correlated with Site of Lesion	Good	Fair	Poor	Failed
Scalp	15	8	—	—
Face	34	22	5	6
Neck	3	2	—	—
Arms	13	2	1	—
Hands	1	1	1	—
Trunk	36	6	—	—
Legs	4	1	—	—
Feet	—	—	—	—
Mouth	11	6	4	2
Anogenital	5	1	—	—
Subtotals	122	49	11	8
Total				190

Face:	Good	Fair	Poor	Failed
Forehead and cheeks	16	14	3	2
Eyelids	11	5	1	1
Nose	5	1	—	—
Ears	1	1	—	1
Lips (cutaneous)	1	1	1	2
	34	22	5	6

Mouth:	Good	Fair	Poor	Failed
Lips (mucous membrane)	4	2	—	1
Gingiva	—	—	2	—
Tongue	4	2	1	1
Palate	—	—	1	—
Buccal	3	2	—	—
	11	6	4	2

TABLE 7.--*Effectiveness of Sclerosing Injections in 190 Hemangiomas (164 Patients)*

Results Correlated with Size of Lesion	Good	Fair	Poor	Failed
Up to 1 cm.	36	9	1	—
1.1 to 3 cm.	54	29	4	4
3.1 to 5 cm.	19	7	2	2
5.1 to 10 cm.	7	3	2	1
Over 10 cm.	6	1	2	1
Subtotals	122	49	11	8
Total				190

Results Correlated with Type of Lesion	Good	Fair	Poor	Failed
Strawberry	60	15	1	—
Cavernous				
Cavernous only	17	8	5	2
Mixed	37	22	5	5
Senile	8	4	—	1
Subtotals	122	49	11	8
Total				190

Fig. 2.—T. M., two years after treatment.

The 8 instances of failure were all cases with a background of mitigating circumstances. One patient was

aged 2½ years, one was 6 years old and the rest were between 21 and 71 years of age. Six lesions had been present at birth; 1 appeared at the age of 3 months and one at 48 years of age. The last had been present for five years when observed; the duration of the other seven corresponded approximately to the ages of the patients. The locations, sizes and types of these angiomas are shown in the tables. Five patients had previously failed to benefit from other therapy, including cautery, roentgen ray, radium and surgery (2 cases). In another, roentgen rays failed after unsuccessful use of sclerosing injections. One lesion was complicated by a keloid from earlier surgical procedures. Two women had small dormant angiomas until the advent of pregnancy.

TABLE 8.--*Time Required for Injection Therapy in 190 Hemangiomas*

Duration of Lesion	Months of Therapy			
	6 or less	7-12	13-24	Over 24
1 to 5 mo.	42	32	12	3
6 to 11 mo.	20	13	5	—
1 to 5 yr.	17	15	5	2
6 to 20 yr.	4	5	3	3
Over 20 yr.	2	3	2	2
Subtotals	85	68	27	10
Total	190			

Type of Lesion	Months of Therapy			
	6 or less	7-12	13-24	Over 24
Strawberry	51	20	4	1
Cavernous				
Cavernous only	10	10	6	6
Mixed	23	26	14	6
Senile	11	2	—	—
Subtotals	95	58	24	13
Total	190			

The amount of injection therapy required for effective results and the length of time involved could be analyzed from various points of view. The average number of treatments per lesion for all angiomas, regardless of result, was 8.24 injections. This therapy required an average time of 8.34 months. The greatest number of injections given any one lesion was 39; the same case involved the longest elapsed time, or sixty-six months. The patient was a woman aged 39 with a cavernous hemangioma of the lower two thirds of one side of the face since birth; the result was good. The maximum amount of sclerosing solution injected into any patient at one treatment was 10 cc. Table 8 illustrates the time factor in accordance with the duration and type of lesions. This clearly demonstrates the quicker response of angiomas which were of less than a year in duration. It is known that a spontaneous resolution occurs in many hemangiomas within a relatively short period of years. One might thus assume that waiting for five years would bring about a quicker response when therapy was instituted. On the contrary, table 8 indicates that angiomas involute less rapidly when treated after the duration has passed one year, and progressively slower with increased age of lesions.

It is also demonstrated that the senile cavernous angiomas sclerose far more quickly with injections than any other variety of angioma. None had been previously treated. Results with sclerosing injections were predominantly satisfactory despite the fact that all of the senile lesions so treated were situated on the face or in the mouth, where the poorest average results obtained. This circumstance is most fortunate, since senile cavernous angiomas are not appreciably responsive to radiation and are often ill suited to other means of treatment.

When results of therapy with sclerosing solutions were analyzed in accordance with the number of treatments given, by duration and type of lesion, the findings were in close agreement with table 8. This might be expected, since the average number of injections and average months of therapy were essentially the same. The amount of treatment necessary for angiomas on assorted sites and for large or small lesions did not seem to vary significantly. Thus while location and size were of prognostic import, the duration of the tumor and its type were of more influence in regard to quantity of sclerosing injections required. The end results were not in evidence at the termination of therapy in most instances. (Indications for stopping injections are given later in this paper.) The 190 treated lesions achieved their maximum results after therapy as follows: 34 within three months; 76 in six months; 46 at twelve months; 24 at 24 months, and 10 later than twenty four months. Only the type of lesion seemed of significance in this respect. Senile cavernous angiomas were notably the quickest to respond. Strawberry marks, while requiring less average time(and quantity) of therapy than mixed or purely cavernous angiomas, were not appreciably faster in attaining satisfactory effects.

Fig. 3. P.G., aged 3 months. Showing cavernous agnioma 2.5 cm. in diameter. Fourteen injections were given in twelve months.

This paper is concerned primarily with hemangiomas, but it may be said in passing that lymphangiomas have not responded well to sclerosing injections. Five of the 6 patients observed received injections, but their lymphangiomas did not sclerose satisfactorily.

The 6 instances of granuloma pyogenicum, however, did exceedingly well. Four patients were most promptly relieved of their lesion after one injection.

SOLUTIONS EMPLOYED

A solution of quinine and urethane was perhaps in most wide usage just prior to the period of time encompassed by the group of cases reported herein, but none of them were treated with it. This agent was not utilized because a number of patients had been observed whose varicose veins were sclerosed with quinine and urethane,

and in whom a sensitization dermatitis developed. Sodium morrhuate (5 per cent) was employed at the beginning of this series but soon abandoned because of reactions. Other sclerosing solutions subsequently utilized and their effectiveness are outlined in table 9. When these results were calculated in percentages there was too little difference among the three agents employed to be of notable significance.

TABLE 9.—*Results According to Agent Used in Sclerosing Injections* (190 *Hemangiomas*)

Solutions	Results			
	Good	Fair	Poor	Failed
Sodium morrhuate	8	3	1	—
Sodium citrate	32	9	3	2
Monoethanolamine oleate	57	24	4	4
Invert sugar and sodium chloride	25	13	3	2
Subtotals	122	49	11	8
Total				190

A 30 per cent solution of sodium citrate with 1 per cent procaine hydrochloride was next to succeed the morrhuate. Within a few months a distressing reaction occurred and the local anesthetic ingredient was eliminated at once; thereafter, the citrate alone gave no difficulty.

Monoethanolamine oleate was subsequently used in a search for more effective action. Thus substance was made up in 5 per cent dilution, with 2 per cent benzyl alcohol. It seemed to create no less painful local reactions but appeared to provide better results. The largest number of angiomas was treated with this solution, but table 9 reveals no appreciably improved efficiency. Invert sugar was used later. As prepared by our hospital apothecary, the invert sugar solution is of 30 per cent strength, with the addition of 10 per cent sodium chloride and 1 per cent phenylethyl alcohol. It has been comparatively free of reactions, perhaps less painful and productive of essentially as good results as the others.

Although the impression had arisen that sodium citrate was relatively slow and less efficient, table 9 does not bear this out. Nevertheless, citrate solution has been almost entirely superseded in the last few years. Monoethanolamine oleate and invert sugar have been employed in alternate cases without selection, after the latter solution more recently came into use.

Not all of the unsatisfactory results should be attributed to the various solutions, since faulty technic can give rise to more scarring than would otherwise ensue. There were 7 lesions that ulcerated after sclerosing injections were instituted. Five tumors continued to enlarge somewhat during therapy; 3 stopped after a few treatments, but 2 required adjunct measures. One was a gingival lesion which had appeared with the eruption of a deciduous tooth six years earlier. It did not respond to roentgen therapy but was apparently relieved one year later by extraction of the tooth and excision of the lesion. With the appearance of the permanent tooth the tumor recurred, one year prior to observation, and hemorrhages were frequent. Growth stopped after several injections of sclerosing solution and the angioma had receded 50 per cent in six months time. Hemorrhages still occurred at night but less frequently; an oral surgical consultant advised radiation therapy, and the patient was entirely lost from the series. A large lesion covering half the face and neck also received roentgen treatment. This was flat until the age of 6 weeks and then began to swell with increased discoloration. Injections were started one week later. Growth continued slowly for six weeks and the mass then began to expand rapidly, doubling its area and tripling its elevation within ten days. At that point three roentgen treatments were administered at monthly intervals. Growth ceased after three months, but no shrinkage took place after six months and injections were resumed. Altogether twenty treatments were given during a total period of two years. The outcome was remarkably good, with normal contours and but few splotches of color, when last observed at the age of 4½ years.

Fig. 4.—P. G., ten months after treatment. One year later this lesion was not detectable.

REACTIONS

Subjectively there is pain of considerable degree immediately on instillation of these sclerosing solutions into the tissues. Patients of sufficient age to offer reliable data have reported sharp pain for five minutes to one hour; dull aching or minor discomfort may persist as long as two to four hours. In about half the cases, however, no appreciable annoyance continues beyond one-half hour unless a large quantity of solution has been injected.

Objectively, the first local change is blanching if sufficient fluid is inserted to distend the tumor or if the injection is too superficially placed. The usual color returns quickly after termination of the treatment, and swelling soon begins. Some angiomas will double their size within fifteen minutes and may quadruple their mass by the next day, with some inflammatory reaction extending to adjacent tissues. This is seldom at all distressing or uncomfortable unless from pressure on underlying structures. It may require a week or more to subside entirely.

Untoward reactions occurred eight times among the 1,566 injections administered in this series of 190 angiomas. In several instances an undesirable episode was credited as a reaction when considerable doubt existed, but among infants and small children any symptom warrants suspicion. The most common systemic reaction consisted of malaise and anorexia with or without vomiting or fever. This happened six times; three of the reactions followed injection of monoethanolamine oleate (one reaction also included a transient toxic erythema); two occurred with sodium morrhuate and one came after injection of invert sugar solution. One

patient is included twice, having reacted to morrhuate, and subsequently to monoethanolamine. The latter drug appeared to cause urticaria once. A reaction of the nitritoid type with syncope developed almost immediately after injection of sodium citrate with procaine on one occasion; the baby subsequently received invert sugar solution on several occasions without mishap.

TECHNIC

There is no particular skill required to administer sclerosing solutions by injection. The site of puncture may be either directly into the lesion or through the skin just beyond its periphery. A small caliber needle should be employed (24 to 26 gage) and of sufficient length in accordance with the size of the lesion to require the minimum number of punctures. Hemorrhage has never been a problem regardless of the site of injection;

Fig. 5.—F. O., aged 8 years. Neurocutaneous syndrome, with small areas of port wine stain over the entire left side of face and some in scalp, and strawberry hemangioma on lateral half of left upper eyelid. Three fourths of the upper lip showed cavernous angioma. All of the left buccal mucous membrane revealed mixed strawberry and cavernous changes. All of the left side of the face would swell when the head was held down. At the age of 5½ years the left external carotid artery had been ligated and a plastic repair of the lip defect performed; improvement was slight. In ten months the lip received six injections and the eyelid and buccal mucous membrane five each.

firm pressure is applied for two or three minutes and bleeding is negligible. The number of sites of injection depends entirely on the size and shape of the individual lesion. The quantity of solution instilled at the first treatment varies from 0.05 to 0.5 cc., this again in accordance with the size of the lesion. The first injection may have no effect if the angioma is of appreciable size, but a small dose should cause less systemic disturbance if the patient happened to react. One other qualifying factor enters into the amount of the initial dose. If there is an allergic family background, the first treatment may well be half the customary amount. The increase in quantity of solution can be rapid with additional treatments if the lesion is large. The maximum amount employed in any one lesion in this series was 1 cc. simultaneously into each of ten sites covering a large area. The frequency of injections depends mainly on the relative activity of the individual tumor. If an angioma is steadily enlarging, it may require treatments every week or two until growth is arrested. As time passes sclerosing injections may be given at intervals of one to three months. It is of primary importance to keep the solution from being deposited too superficially, since this will nearly always eventuate in sloughing. If blanching is observed, that particular area has received sufficient fluid and the needle should be moved to another region of the tumor.

Fig. 6.—F. O., eighteen months after treatment. The cavernous lesion on the lip is strikingly improved and the strawberry mark on the eyelid is definitely regressing. There is little change visible in the port wine elements. Involvement of mucous membrane has decreased about 75 per cent.

In treating the mixed variety of hemangioma, attention need be directed only to the cavernous portion; by the time this element has received sufficient therapy, the strawberry features of the lesion will nearly always have made decided progress toward obliteration, and they may require no additional injections. If a patient returns with local reaction from a preceding treatment still in evidence, or if the lesion shows no residual reaction but is firm throughout, additional injection should be postponed. If a large cavernous angioma seems unduly slow in response to sclerosing injections, the first encouraging sign may be cordlike thickening which can be palpated within its depth. Frequently in the earlier period of this work a patient was advised that surgical procedures or some other adjunct measure would probably be necessary. When they demurred and returned after periods of three to six months, many of the lesions showed surprising improvement. Thus it gradually became evident that haste is not necessary once the growth of a lesion has been arrested. When a lesion can be reached from either a cutaneous or mucous membrane surface, experience indicates that there is less discomfort from the injections when administered through the mucous membrane; this applies to eyelid lesions as well as oral tumors. No local anesthetic was employed prior to any injection.

UNTREATED GROUP

The 37 patients who were not given sclerosing injections exhibited 67 lesions. Their angiomas consisted of 46 strawberry marks, 8 purely cavernous structures, 8 of mixed type and 5 senile cavernous lesions. These cases were followed for periods of one to five years, with an average observation period of 23.2 months per lesion.

Among the 46 strawberry angiomas, 9 had been previously treated, needing no additional attention. Eleven involuted spontaneously, 11 were gradually regressing, 12 remained unchanged and 3 grew steadily larger.

The 8 cavernous hemangiomas eventuated as follows: in 3 tumors results of previous treatments were good; 3 regressed steadily, and 2 remained unchanged

Mixed strawberry and cavernous tumors, numbering 8, slowly improved in 3 instances, were stationary in 2 and enlarged in 3.

All of the 5 untreated senile cavernous angiomas were apparently fully matured and exhibited no further change. One had existed for twelve years before observation and was followed three more years, remaining fixed.

COMMENT

Injection therapy for angiomas is far from being a new approach. This method was used nearly one hundred years ago to produce sclerosis in aneurysms and varicose veins.[1] A great variety of substances have been injected from time to time throughout succeeding years. Some of these include ferric salts, mercuric chloride, red mercuric iodide, antipyrine, sodium salicylate, arsphenamine, iodine, potassium iodide, iodotannic acid, acetic acid, citric acid, alum, phenol, chloral hydrate, silver nitrate, sodium chloride, dextrose, quinine salts, urethane, urea, alcohol, sodium morrhuate, sodium citrate, monoethanolamine oleate, invert sugar and boiling water. Most of these agents were quickly abandoned, some of them because of serious consequence. With the passage of time and the use of safer solutions, there is practically no hazard remaining. There is one series of 325,000 cases of varicose veins cited [1] without pulmonary embolism.

Andrews,[2] Kaessler [3] and Watson and McCarthy [4] have reported satisfactory results from the use of sclerosing injections for hemangiomas in groups of patients large enough to warrant proper conclusions. Andrews' series includes 408 cases in which he achieved 70 per cent perfect results and 10 per cent additional satisfactory response. He compared this group with 146 cases in which treatment was by means of radium. The latter method provided 65 per cent perfect results, and 23 per cent were satisfactory. It was Andrews' feeling that injection therapy was more desirable in many regions where radiation is hazardous. He felt that the duration of treatment was appreciably shortened by the use of sclerosing solutions. Andrews stated that injections should be employed more extensively because of their "effectiveness, freedom from danger, and simplicity."

Watson and McCarthy [4] described the results of treatment in over 1,300 angiomas by several methods. They found that excision provided the highest percentage of good results, but that particular group of patients was most carefully selected and they warned against a keloidal tendency. In spite of the selection of cases for surgical treatment, these authors found it possible to obtain nearly as good results with either solid carbon dioxide or sclerosing solutions. External radium, interstitial radium and roentgen therapy were successively less satisfactory in their series.

There is differing opinion regarding the advisability of irradiation in the majority of hemangiomas. At the Massachusetts General Hospital the feeling of our radiologists is: "Usually radiation therapy of any sort is contraindicated in hemangiomas. The cavernous type is difficult to control because of the size of the vessels and the maturity of the cells; strawberry angiomas respond readily to radiation but the majority of these will disappear without treatment. Rarely in large tumors that have a tendency to bleed easily, where one's hand is forced by a rapidly growing tumor, or where the persistence of the tumor will cause deformity of a growing part or may be a hazard to life, small doses of roentgen therapy may be given, but we prefer to use some other method of control, such as injection, which does not harm the overlying skin. It does not seem justifiable to compromise the skin over a benign lesion, which is probably going to disappear anyway, and so run the risk of undesirable late sequelae." [5] Pfahler [6] disagreed and has reported a large series of cases treated by radium with satisfactory results. The time required for therapy was a year or longer per lesion. Pfahler stated that "hemangiomas rarely if ever regress spontaneously." In contrast, Anderson [7] expressed the opinion that all angiomas should be left strictly alone until the patient is at least 6 years of age, believing that spontaneous involution will have occurred in the majority by that time. The best control series found in the literature was reported by Lister,[8] who followed a group of 77 children with 93 untreated vascular nevi for a period of one to seven years. All except one lesion disappeared or were well on their way by the age of 5 years. It was interesting to review a report by Traub [9] published about fifteen years ago. He gave therein the results of a questionnaire answered by ninety members of the American Dermatological Association. The consensus regarding behavior of angiomas and the advisability of treatment was in agreement with the findings among the cases reported herein.

A few additional observations regarding injection therapy for angiomas will bear comment. It is a most favorable indication for all of the color to disappear from a lesion under diascopic examination; the contrary is true if an appreciable amount of pigmentation is found under diascopy. Lesions which display patches or even small flecks of paler color have already begun some degree of spontaneous sclerosis and will probably progress nicely under treatment; the darker the color, the more likely that the response will be slow. The more superficial or shallow angiomas are apt to be the most tardy in returning to normal color. Those angiomas exhibiting visible sprays of radiating vascular channels which appear to be mature vessels are often exceedingly slow, and the individual vessels may remain unaffected by sclerosing injections. Electrolysis is most suitable for the obliteration of these structures. Whether a vascular tumor will swell in one position or another, or with any form of physical exertion, seems to have little prognostic significance. On the other hand, the slower the rate of refilling after the blood is forced out of an angioma, the more favorable is the prognosis. It will bear emphasis again that mothers should be advised

1. Light, S. W.: The Injection Treatment of Cavernous Hemangiomas: Report of a Case and Historical Review, Arch. Dermat. & Syph. **24**: 992-998 (Dec.) 1931.
2. Andrews, G. C.: Treatment of Angioma, Based on Ten Years' Experience at the Vanderbilt Clinic, Arch. Dermat. & Syph. **37**: 573-582 (April) 1938.
3. Kaessler, H. W.: Vascular Birthmarks: Treatment with Injection of Sclerosing Solution, J. A. M. A. **110**: 1644-1647 (May 14) 1938.
4. Watson, W. L., and McCarthy, W. D.: Blood and Lymph Vessel Tumors: A Report of 1,056 Cases, Surg., Gynec. & Obst. **71**: 569-588 (Nov.) 1940.
5. Robbins, L. L., and Schulz, M. D.: Personal communication to the author.
6. Pfahler, G. E.: The Treatment of Hemangioma, Radiology **46**: 159-170 (Feb.) 1946.
7. Anderson, C. R.: Treatment of Vascular Nevi, J. Pediat. **25**: 148-149 (Aug.) 1944.
8. Lister, W. A.: The Natural History of Strawberry Naevi, Lancet **1**: 1429-1434 (June 25) 1938.
9. Traub, E. F.: Should Vascular Nevi Be Treated? Arch. Pediat. **50**: 272-278 (April) 1933.

regarding the likelihood of spontaneous involution and that they should also be warned, in the case of large lesions, that the lesions may ulcerate whether or not treatment is instituted.

SUMMARY

The common types of vascular nevi have been described and their probable mode of behavior portrayed. The indications for and advisability of treatment have been discussed. The various methods of treatment are outlined. Most of them will be successful when properly administered.

A group of 233 patients with 310 vascular tumors comprise the series under observation. These provided a series of 190 hemangiomas which were treated by the injection of sclerosing agents. The technic of injection therapy is simple and the procedure is not hazardous. Good results were obtained in 64 per cent of the entire group, and an additional 26 per cent had fairly good effect. Only the remaining 10 per cent of the lesions came out poorly or were failures.

These results compare well with published statistics but are less favorable than some. It seems doubtful whether any better cosmetic effects can be obtained with other methods. Sclerosing injections perhaps bring about little or no more rapid involution of lesions but should provide less scarring. It was obvious that the youngest patients and the lesions of shortest duration responded most satisfactorily. Lesions located about the face and in the mouth gave the poorest results.

It is not the purpose of this paper to indicate that sclerosing injections are remarkably superior to other means of treating angiomas. The method of approach for any given lesion should be selected in accordance with the individual circumstances, and other measures may seem better advised than sclerosing injections. It might be said, however, that this form of treatment more nearly approaches a means of assistance to the natural processes which tend to bring about spontaneous sclerosis in hemangiomas.

ABSTRACT OF DISCUSSION

DR. H. FORD ANDERSON, Washington, D. C.: In the past twenty years as dermatologist to Children's Hospital in Washington, and in private practice, I have had the opportunity to direct treatment in hundreds of cases. Thrombosing solutions of various kinds have been used since 1927, after observation of the work of Planner in Kyle's Clinic and Fuhs in Arzt's Clinic, with both varicose veins and vascular nevi. In handling the problem of therapy in nevi, it is difficult to lay down too fixed a rule as to the efficacy of one method over all others. As time goes on, the signs of self involution are watched for more and more, and when they are found, of course the tumor is watched carefully but no therapy is instituted in by far the large majority of instances. When, for one reason or another, therapy is considered advisable, the choice depends to some extent on the experience and peculiar proficiency of the operator in one or another method of procedure. Some become more proficient in the use of one method of approach and naturally will choose that modality when there is a close decision to be made between modes of attack. In many instances, the same tumor can be equally well disposed of by one or another operator, each using one of four or five of the well recognized methods of approach. We should do all in our power to become adept in choosing and administering the best therapy in the particular case, no matter what method it is, excepting probably extensive, intricate or plastic surgery, when we should see that the best available plastic surgery is employed. In this day and age, this degree of expertness cannot be attained without a comprehensive knowledge of the use of thrombosing agents. It is here that the author is justified in adding his valuable contribution to those of Andrews, Kaessler, Watson and McCarthy and others. In 1938, Andrews emphasized the effectiveness, simplicity and relative safety of the injection treatment, but not to the exclusion of other procedures. In this whole problem, one cannot emphasize too strongly one thing, and that is to proceed slowly and always be reluctant about using any kind of treatment after involution has once begun. This must be stressed most when radium or roentgen rays are employed.

TREATMENT OF ECZEMA (ATOPIC DERMATITIS) IN INFANCY

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Atopic dermatitis, most commonly known as infantile eczema, is the most important skin disease of infancy and childhood. It is not the most common one, since most infants escape this altogether while practically every infant has at one time or another at least a minimum of seborrheic dermatitis in the form of "cradle cap" or of eczematous dermatitis of the contact type, particularly in the form of a diaper rash. The eczematoid dermatoses commonly start on the cheeks, and at the onset it may be difficult or impossible to determine whether one is dealing with atopic, seborrheic or contact dermatitis. It is also possible for the inexperienced or careless person to mistake other diseases such as scabies, psoriasis or pediculosis for atopic dermatitis, but fortunately these conditions are not common in infancy and childhood, and the diagnosis of atopic dermatitis is not often mistakenly made in this age group.

No one pretends that the treatment of atopic dermatitis is completely satisfactory. The problem is to do the best one can with a disease which is usually self limited, with a tendency to spontaneous remissions and eventual recovery regardless of therapy. However there are two reasons why one should not depend too much on nature for the eventual cure of the patient:

1. There is no way of telling in advance which patient will "outgrow" atopic dermatitis and which patient will not. It is a great tragedy, particularly for a girl, to be obliged to pass through puberty into young adulthood with a diseased skin. The psychic trauma in such cases is often far out of proportion to the actual discomfort caused locally by the dermatitis. Every effort should be made to clear the child's skin as soon as possible and to continue to keep it clear.

2. The presence of atopic dermatitis is an indication that one is dealing with an allergic child. This means that only one phase of a cycle which may go on with varying manifestations and with varying degrees of intensity for the rest of the patient's life is being observed. The object of treatment should be not only to relieve the present complaint but to outline a way of life which may possibly prevent the development of other and perhaps worse allergic diseases, such as asthma, in the future.

It is not the purpose of this discussion to consider thoroughly the controversial problem of the prophylaxis of allergic diseases.[1] It can at least be said of the

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Read before the Section on Miscellaneous Topics at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Peshkin, M. M.: Prophylaxis of Asthma in Children, Internat. Clin. **3**: 262, 1930. Glaser, J., and Landau, D. B.: Prophylaxis of Allergic Disease, J. Pediat. **8**: 470, 1936. Ratner, B.: Allergy in Childhood: II. Prophylaxis, ibid. **12**: 737, 1938. McGee, W. A.: Allergy in Childhood: Prophylaxis, Early Recognition and Treatment, J. A. M. A. **111**: 1551 (Oct. 22) 1938. Kern, R. A.: Prophylaxis in Allergy, Ann. Int. Med. **12**: 1175, 1939.

various measures which have been advocated that they do no harm. It will take years of careful, well controlled study to discover if they really help, and it is my feeling that meantime the patient should be given the benefit of the doubt. A rather concrete bit of evidence of the possible value of one of such procedures is the work of Grulee and Sanford,[2] who in a study of over 20,000 infants at feeding stations in Chicago found the incidence of "eczema" lowest among breast-fed infants, twice as great among those partially breast fed and seven times as great among those completely artificially fed. This work, which is of sufficient importance to be checked by other investigators, should be sufficient indication, if confirmed, of the need of breast feeding for infants born in allergic families. It is too often forgotten that breast milk is the only natural food for the human infant, at least during the first months of life, and that the cow, deserving as she is of the title of foster mother of the human race, after thousands of years of domestication still produces milk primarily designed for calves and not for human beings.

The treatment of any given case of atopic dermatitis resolves itself into the following procedures: (1) prophylactic measures, briefly mentioned before, (2) environmental control, (3) local therapy, (4) systemic therapy and (5) dietary therapy. The sixth procedure, specific treatment, which consists in finding and eliminating the causative allergen when possible, is sometimes involved in the five foregoing procedures, but assistance is often received in this direction from cutaneous testing.

It was formerly believed that in infancy ingested allergens played the most important role. At present there is no certainty of this. It is now generally accepted that atopic dermatitis may at times be caused by direct contact of the skin with allergens (transepidermal penetration[3]) as well as by allergens which have been inhaled and which reach the skin through the blood stream as do the ingested allergens.[4] It is also probable that atopic dermatitis and contact dermatitis have been too sharply separated in the past. This has recently been emphasized by Hill[5] and by Ratner.[6] In connection with this subject, it should also be mentioned that there is doubtless a close relationship between seborrheic and atopic dermatitis. Often an infant will be observed with what appears to be typical seborrheic dermatitis, which as the child grows older gradually develops into typical atopic dermatitis.

The characteristic distribution of atopic dermatitis, with the lesions worse on the face, the area of the arms below the elbows and the area of the legs below the knees, suggests a possible contact origin. It is tempting to consider that such lesions might be caused by a ubiquitous and powerful allergen, house dust, which could act either by contact or by inhalation.

The often remarkably beneficial effects of hospitalization are commonly attributed to avoidance of house dust as well as of other environmental allergens. Some allergists are treating patients with atopic dermatitis by the injection of house dust extract, and although these studies have not yet been published good results are claimed. It impressed me that if house dust does cause atopic dermatitis positive reactions to patch tests should be obtained with house dust extract. Forty-two successive infants and young children with typical atopic dermatitis were given patch tests with concentrated pooled house dust extract. Both aqueous and lipid fractions were used. In this series there were three definitely positive reactions and two questionable reactions to the aqueous extract. Four infants gave definitely positive reactions to the dust lipid, and there was one questionable reaction to this extract. Only 1 patient reacted positively to both the aqueous and the lipid preparation. In this particular case good results were obtained after the injection of dust extract containing both fractions. However since other measures were also used the occurrence in this case proves nothing, and the problem is still being investigated. Stroud[7] has reported cases of dermatitis in adults due to the lipid fraction of house dust.

While positive evidence is lacking that house dust may cause atopic dermatitis, the allergist is justified in advising an environment as free from dust as possible for the patients involved both as a possible therapeutic measure and as a prophylactic one. In addition, specific directions should be given for avoiding other material to which the infants are or may become easily sensitized, such as feathers, wool, animal pets, silk, clothing dyes, soap and others which may be indicated.

One of the major problems in environmental control in the colder parts of the United States lies in providing children with adequate protection by means of clothing which does not contain wool, particularly with regard to snow suits and other articles of winter apparel. This has lately been achieved by using tightly woven cotton cloth of good quality with spun glass fiber[8] as an insulating material between the outer and inner layers. This is said to be superior to wool as regards warmth, and such clothing may prove invaluable in the care of the atopic child. While it is possible to weave blankets of spun glass fiber to take the place of wool blankets, their expense precludes general use. It is hoped that eventually less expensive blankets will be put on the market patterned in construction after the snow suits.[8a]

An important part of the local treatment of the child with atopic dermatitis is the cleansing of the skin by means of bathing. It is a matter of common experience that in most patients with this disease the condition is made worse by the use of soap. According to Sulzberger and Baer,[9] the exact mechanism of this is unknown. They suggest that soap, by virtue of its degreasing and keratolytic action, favors the percutaneous penetration of environmental allergens to which atopic patients are often highly sensitive. To obviate the disadvantages of soap, untreated vegetable oils or mineral oils were used for cleansing the skin. Later sulfonated oils were found to be somewhat superior. All oils, however, have the psychologic disadvantage of not making suds. Most satisfactory to date have been the newer wetting agents derived from lauryl alcohol. These are active detergents and make suds, but they also defat and dry the skin and may act as sensitizers although this rarely occurs in infants and

2. Grulee, C. G., and Sanford, H. N.: The Influence of Breast and Artificial Feeding on Infantile Eczema, J. Pediat. 9: 223, 1936.

3. Sulzberger, M. B.: Dermatologic Allergy, ed. 1, Springfield, Ill., Charles C Thomas, Publisher, 1940, p. 69.

4. Sulzberger, M. B., and Vaughn, W. T.: Experiments in Silk Hypersensitivity and the Inhalation of Allergen in Atopic Dermatitis (Neurodermatitis Disseminatus), J. Allergy 5: 554, 1934.

5. Hill, L. W.: The Pathogenesis of Infantile Eczema, J. Allergy 18: 60 (Jan.) 1947.

6. Ratner, B.: Pediatric Approach to the Management of Allergic Eczema in Children, New York State J. Med., to be published.

7. Stroud, C. M.: The Use of House Dust Oil and Thrasher Dust Oil in Contact Dermatitis, J. Allergy 6: 464, 1935.

8. Manufactured by the Owens-Corning Fiberglas Corporation, Toledo, Ohio.

8a. Since this paper was presented such blankets have become available through the Expert Bedding Co., 2454 N. Halsted St., Chicago, Ill.

9. Sulzberger, M. B., and Baer, R. L.: Effects of Soap on the Abnormal or Diseased Skin, in Fishbein, M.: Medical Uses of Soap, ed. 1, Philadelphia, J. B. Lippincott Company, 1945, chap. 4, p. 72.

young children. Two particular preparations, "lowila cake"[10] and "dermolate,"[11] are supplied in the form of soap bars. This is particularly useful because it gives the mother the feeling that she is simply using another kind of soap on her baby.

For bathing, colloid baths are commonly used and are highly satisfactory. The simplest is prepared by adding a cup or two of corn starch to a tub of tepid water. The patient is soaked in this for ten or fifteen minutes, and with this the detergent may be used. The patient should be dried by sponging and not by rubbing. Tar baths are also useful. The most readily available preparation is liquor carbonis detergens (liquor picis carbonis N.F.). This is a saponified alcoholic extract of coal tar. Two cupfuls are added to a tub of water and the patient allowed to soak for ten minutes. The "Almay tar bath"[12] is a useful commercial preparation made from juniper tar (oil of cade), and two to four tablespoons are used in a tub of water.

The local treatment of atopic dermatitis depends on whether the condition is acute, acute exudative, subacute or chronic. Probably the best treatment for the exudative stage is the application of 0.5 per cent solution of aluminum acetate in a 1 to 20 dilution.[13] Potassium permanganate in dilutions of 1:5,000 to 1:10,000 may also be used. A saturated solution of boric acid is satisfactory but should not be used long or extensively as it is not without danger.[14] Ratner,[6] pointing out the difficulty of applying wet dressings to the skin of patients at this age, recommended painting the raw or oozing areas with a 2 to 4 per cent aqueous solution of gentian violet medicinal, over which calamine lotion in single or double strength with or without phenol may be applied if desired. In the acute stage, the so-called 1-2-3 ointment may be used. This consists of one part of aluminum acetate solution, two parts wool fat and three parts paste of zinc without salicylic acid.[15]

In the subacute and chronic stages other ointments are employed. The single most effective ingredient is tar. The exact mechanism by which tars exert their clinical effect is not known. Occasionally a tar from one source will be completely ineffective while a tar of other origin will be completely satisfactory in the treatment of the same patient. Because of the disagreeable appearance of crude coal tar and of ointments containing tar, attempts have been made to extract the active antieczematous principle. Nelson and Osterberg[16] extracted the steam distillate of crude coal tar with ether and obtained a product commonly as efficient as crude coal tar but almost white. This preparation is the base of most of the so-called white tars now on the market. Dr. Samuel W. Clausen, of the Department of Pediatrics of the University of Rochester School of Medicine, obtained a highly satisfactory product in 1929 simply by the extraction of crude coal tar with hot alcohol.[17]. Irritating material is removed by low pressure distillation. This extract is commonly used in 3 per cent strength in an ointment base.

One of the most satisfactory vehicles used in atopic dermatitis is paste of zinc without salicylic acid. This product has been included in the National Formulary since 1942 and is made up of one part zinc oxide, one part starch (corn or arrowroot) and two parts white petrolatum. This is an excellent vehicle for tar or tar extract, mercury, sulfur and other drugs. Phenol in proportions of one quarter to 1 per cent is sometimes added as a local anesthetic if the area to be covered is not excessively large. Salicylic acid may be added in proportions of 1 to 3 per cent depending on whether a stimulant or a keratolytic is desired. "Vioform" (5-chloro-7-iodo-8-hydroxyquinoline), introduced into this country by Sulzberger and his co-workers,[18] is occasionally helpful in atopic dermatitis, especially if the skin is superficially infected. It is somewhat more useful in seborrheic dermatitis. It is used in 1 to 3 per cent concentration in petrolatum or in a vanishing cream base.[19] Hill[20] has reported good results in the treatment of chronic stubborn patches of atopic dermatitis with the Swartz ointment (4 per cent merbromin with 6 per cent salicylic acid, sufficient water to dissolve and sufficient wool fat and petrolatum to make 2 oz. [60 Gm.]). Robinson[21] favored the compound resorcin ointment (N.F.). There are also on the market many proprietary ointments whose composition is not completely known, some of which are exceedingly effective. However, as Ratner[6] has pointed out, if one consults the United States Dispensatory he will find listed practically every ointment in common use, and by a proper utilization of this information ointments can be created to fit the needs of the individual patient.

In all instances of atopic dermatitis it is well to put the child on a simple elimination diet. Such a diet for a child of 1 year of age or less may be easily made up from the following ingredients, the number of the ingredients depending on the age of the child: (1) cow's milk substitute, (2) one single pure cereal such as oatmeal, (3) two vegetables (carrots and string beans), (4) two fruits (apple and pear), (5) one meat (capon or rooster) and (6) vitamins A, D and C. Even for children up to the age of 1 year a trial diet consisting only of the cow's milk substitute may be used and the other ingredients added gradually if the skin improves.

The substitution of the milk of another species of mammal is occasionally successful if the patient is sensitive to lactalbumin, which is species specific. However the great majority of infants who are sensitive to milk are allergic to casein, and this is essentially of the same composition regardless of the species of the animal. I therefore commonly use soy bean milk. If an infant is sensitive to soy bean, a satisfactory artificial milk whose protein base is meat[22] may be used with complete satisfaction of the requirements for growth and development. Liquefied meats are now available com-

10. Westwood Pharmacal Company, Buffalo, N. Y.
11. Rare Chemicals, Inc., Harrison, N. J.
12. Almay, Inc., 56 Cooper Square, New York 3, N. Y.
13. This may be conveniently prepared by adding one "domeboro" tablet (Dome Chemicals, Inc.) to a pint of water.
14. Pfeiffer, C. C.; Hallman, L. F., and Gersh, I.: Boric Acid Ointment, J. A. M. A. **128**: 266 (May 26) 1945. Watson, E. H.: Boric Acid, a Dangerous Drug of Little Value, ibid. **129**: 332 (Sept. 29) 1945.
15. Rarely a person sensitive to wool may also be sensitive to wool fat. For such persons carbowax preparations (as "hydrosorb" [Abbott Laboratories] or Burroughs Wellcome and Co.'s greaseless ointment base) may be used.
16. Nelson, M. O., and Osterberg, A. E.: A Purified Coal-Tar Ointment for the Treatment of Infantile Eczema, Arch. Dermat. & Syph. **15**: 669 (June) 1927.
17. Unpublished data.
18. Sulzberger, M. B., and Wolf, J.: Dermatologic Therapy in General Practice, ed. 2, Chicago, The Year Book Publishers, Inc., 1942, p. 106.
19. Commercial preparations made by Ciba Pharmaceutical Products, Inc., are now available.
20. Personal communication to the author.
21. Robinson, H. M.: Eczema in Infants, Clinics **3**: 834, 1944.
22. Rowe, A. H.: Elimination Diets and Patient's Allergies, Philadelphia, Lea & Febiger, 1941, p. 200. Glaser, J.: Use of Strained Meats as the Protein Basis for Milk Substitutes in the Treatment of Milk Allergy, J. Allergy **15**: 283, 1944.

mercially which may be used for this purpose.[23]

Chicken is used as the meat in the aforementioned diet because in my experience allergy to this occurs less often. Capon or rooster is specified on both theoretic and practical grounds to avoid feeding the infant egg protein as infants are more commonly sensitive to egg than to any other food except perhaps milk. The theoretic consideration is that one of the constituents of egg albumin, conalbumin, corresponds to serum albumin in the blood of the hen[24] and this is present in sufficient quantities to produce symptoms on ingestion of the meat. The practical consideration is that if the hen is used the meat may be contaminated by egg protein when it is cleaned.

Because cod liver oil has on occasion produced allergic reactions in infants,[25] "provatol" (Wyeth, Incorporated) is used. This consists of provitamin A (carotene) together with irradiated ergosterol of vegetable origin dissolved in sesame oil to provide vitamin D. To provide vitamin C, crystalline ascorbic acid may be prescribed or "cecon" (Abbott Laboratories), which consists of 10 per cent ascorbic acid dissolved in propylene glycol.

If, after a period of seven to ten days the child obtains adequate relief on this diet, one new food may be added each week or so according to his needs and tolerance. If the child does not do well, simple variations may be made in the various dietary constituents which are occasionally helpful. However at this point cutaneous testing is sometimes useful in enabling one to select a diet which has the best chance of giving relief as well as being of assistance as a guide to the foods which may be added to the diet in the future. When giving cutaneous tests, one also endeavors to find clues to environmental factors, such as inhalants and contactants, which may contribute to the child's disability. In infants and young children scratch testing is the procedure of choice. If intradermal tests are used, one should be sure that each test has been preceded by a negative reaction to a scratch test in order to avoid generalized reactions which may be serious and which may even on rare occasions result in the death of a highly sensitive child. Direct testing is commonly the most satisfactory procedure although passive transfer tests should be done when the skin is generally involved.

SYSTEMIC MEDICATION

The most disagreeable symptom of atopic dermatitis is itching. Occasionally the so-called antihistamine drugs (diphenhydramine hydrochloride ["benadryl"] or tripelennamine hydrochloride ["pyribenzamine"]) will give gratifying relief, but this usually is inconstant and variable. The sedative action which these drugs sometimes have may also be helpful. However it must be realized that sometimes apparent sedation which follows these drugs is due to the relief of symptoms so that the exhausted child sleeps naturally. Phenobarbital, especially in combination with acetylsalicylic acid sometimes helps. "Demerol" (1-methyl-4-phenyl piperidine 4-carbonic acid) is often most useful. An infant 2 months of age and upwards may be given one quarter of a 50 mg. tablet every four hours and the dose gradually increased, if necessary, until relief is obtained or until one tablet is given every four hours.[26] Because of the danger of addiction, however, routine or prolonged use of the drug is to be avoided.

Hansen and his associates[27] and Stoesser[28] have shown that in atopic dermatitis there is often a deficiency of the unsaturated fatty acids of the blood and that improvement of the skin condition is associated with an increase in these fatty acids. This observation has led to corresponding therapeutic measures, and in some instances the results have been beneficial. There are obvious difficulties to well controlled clinical feeding experiments, but at least this is a procedure which is not apt to do harm and which has a reasonable chance of success. Fortunately soy bean oil is rich in unsaturated fatty acids and may be easily fed to infants and children. Lard also is used. It should be emphasized that the proponents of this method offer it as an adjunct therapeutic measure and not as the sole method of treatment.

Chronic atopic dermatitis will in rare instances respond remarkably well to the oral administration of potassium arsenite solution. With a chronic disease of this character one hesitates to use arsenic. However now that 2,3-dimercaptopropanol (BAL) is available as an effective antidote for arsenic poisoning perhaps the use of arsenic in atopic dermatitis should be more thoroughly investigated.

One of the most common errors in the treatment of children with atopic dermatitis and indeed in the treatment of allergic children generally is failure to give routine prophylactic treatment for diphtheria, pertussis and tetanus for fear of disagreeable reactions on account of the child's allergic constitution. In my experience in the general practice of pediatrics, largely dealing with allergic infants, disagreeable reactions of any significance are no more common in allergic than in nonallergic children. If desired, the injections may be started with a half or a quarter or even less of the orthodox dosage, and they may then be continued, the amount depending on the patient's reaction, until the full course of treatment has been completed. The immunologic response appears to be just as good as when the treatments are given in fewer but larger doses.

It is particularly important that the allergic child be immunized against diphtheria and tetanus so that he will never need the corresponding antitoxins. If tetanus toxoid has been omitted and tetanus antitoxin is indicated, the bovine preparation[29] should be used if available unless the child is allergic to milk or beef. In such cases a despeciated horse serum antitoxin should be used. Despite the so-called despeciation, this serum must be administered with extreme care.

Hypoimmunization against pertussis is important because respiratory allergies are likely to develop in the allergic child. If such a child contracts pertussis, the disease may aggravate a clinical or subclinical respiratory allergy, particularly bronchial asthma. It is important that a phase 1 pertussis vaccine be used and that it be grown on mediums prepared with human rather than with animal blood to avoid sensitization to a foreign protein. Doses of pertussis vaccine should be administered each year until the child is at least 5 years of age. If whooping cough does develop, it should be

23. Swift & Company.

24. Hektoen, L., and Cole, A. G.: Proteins of Eggwhite, J. Infect. Dis. **42**: 1, 1928.

25. Balyeat, R. M., and Bowen, R.: Cod Liver Oil Sensitivity in Children, Am. J. Dis. Child. **47**: 529 (March) 1934.

26. Glaser, J.: Pediatric Allergy: A Critical Review of Recent Literature, Ann. Allergy **3**: 373, 1945.

27. Hansen, A. E.; Knott, E. M., and Weise, H. F.: Eczema and Essential Fatty Acids, Am. J. Dis. Child. **73**: 1 (Jan.) 1947.

28. Stoesser, A. V.: Influence of Soy Bean Products on the Iodine Number of the Plasma Lipids and the Course of Eczema, J. Allergy **18**: 29, 1947.

29. Glaser, J.: The Use of Bovine Antitoxin for the Prophylaxis of Tetanus, J. Pediat. **19**: 403, 1941.

vigorously combated with human immune globulin.[30] or by the use of hyperimmune human serum.[31]

A child with atopic dermatitis should not be vaccinated against smallpox until the skin is perfectly clear. The reasons for this are, first, that there is danger of multiple external inoculations in scratched-areas and, second, that for a few days after vaccination the virus is carried about in the blood stream and tends to localize in any area of diseased skin. This may produce a generalized vaccinia which may be serious and occasionally disfiguring or even fatal. The length of time which should elapse from the time the skin is clear until vaccination can be safely carried out has never been determined. I generally vaccinate the children during the summer months (except for a minority whose skin is commonly worse in the summer) two or three weeks after the skin is perfectly clear and have never had any complications as a result. It is also important that no fresh vaccinations be made on children from homes in which there are other unvaccinated children with atopic dermatitis. Contact of the skin of these children with a fresh vaccination pustule may produce inoculation, which results in a generalized vaccinia. The contact may also be indirect, e. g., from a soiled towel or washcloth. One death occurred from generalized vaccinia in a hospital of my acquaintance when an infant with atopic dermatitis was bathed in a tub in which a child with a reacting vaccination had just been washed.

In the past few years it has become recognized that Kaposi's varicelliform eruption represents an infection with the virus of herpes simplex (and possibly other viruses) in an eczematous skin. Lynch and others[32] have reported cases in which such infections occurred in infants with atopic dermatitis because of contact with the lesions of herpes simplex in a parent. For this reason contact with persons suffering from herpetic infections should be avoided.

SUMMARY

The orthodox methods of treatment which have proved most successful in the treatment of infantile eczema (atopic dermatitis) are briefly described.

The role of prophylaxis is considered.

The possible importance of house dust as an etiologic factor is discussed.

It is pointed out that warm clothing now made for children from cotton cloth with glass fiber insulation may prove useful for those who are sensitive to wool.

The importance of the routine immunization of children with atopic dermatitis to diphtheria, tetanus and pertussis is stressed. Suggestions are offered in case protection against the two latter has not been conferred.

The necessity of avoiding exposure of children with atopic dermatitis to fresh vaccination lesions and to herpetic lesions in other persons is explained.

ABSTRACT OF DISCUSSION

DR. RUDOLPH L. BAER, New York: Dr. Glaser has covered not only the allergic factors but the important nonspecific and nonallergic factors which contribute to this disease. He called attention to the contactant allergenic factors which are frequently overlooked and which may be involved in addition to the inhalant and food factors. The skin of the infant and the young child is more easily penetrated from the outside than the skin of the adult; thus contactants have to be especially considered in these cases. I think that many cases of atopic dermatitis are made worse by exposure to wool; particularly in children wool often plays an important role. The eruption on the wrists so often seen in children with atopic dermatitis is frequently precipitated by the woolen sleeves. It appears probable that these lesions are due to a combined effect of an allergenic action and of friction.

Allergic factors are not the only ones and often not the most important ones in the aggravation of atopic dermatitis. The exact etiology and the mechanism of production of atopic dermatitis are not known. In a certain percentage of cases we cannot even demonstrate any of the features which characterize atopy such as the familial tendency to atopy, eosinophilia, immediate wheal responses to "protein" allergens or passive transfer antibodies. Because of this, nonallergic factors have to be considered. For example, soap, as Dr. Glaser mentioned, is important and should always be avoided, and soap substitutes should be used. Rapid changes in temperature and friction from clothing should be avoided. Excessively strenuous exercises, especially those leading to sweating, should be avoided. In the infant and in the child, as in the adult, itching is the major complaint, and itching is particularly severe in these cases. Stimuli which normally do not cause itching, such as friction, changes in temperature and small particles of clothing, cause severe itching and start up severe itch crises. To handle these cases properly we must take care of these nonallergic causal and contributory factors. In addition the proper topical dermatologic management as outlined by Dr. Glaser is extremely important.

30. "Hyperfuss" can be obtained from the Cutter Laboratories, Berkeley, Calif.

31. Obtained at the Philadelphia Serum Exchange, Philadelphia.

32. Lynch, F. W.; Evans, C. A.; Bolin, V. S., and Steves, R. J.: Kaposi's Varicelliform Eruption, Arch. Dermat. & Syph. **51**: 129 (Feb.) 1945.

DIGITOXIN INTOXICATION

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In his book on poisons, published in 1910, von Jaksch [1] stated:

Digitalin and digitoxin are frightful cardiac poisons. Their use at the bedside necessitates the greatest care. A single excessive dose of these glycosides invariably results in death from cardiac paralysis in a short time. In clinical toxicology they play a subordinate role. If their use becomes widespread, then, unfortunately, they will become important.

I believe that digitoxin poisoning has now become so frequent an occurrence that it presents a real hazard.

During recent years there has been a resurgence of investigation to find a digitalis glycoside which is stable, of uniform strength, nonirritating to the stomach, readily absorbed from the gastrointestinal tract, quickly eliminated from the body and without excessive cumulative action. Lanatoside C ("cedilanid"),[2] digoxin U. S. P.,[3] strophanthin N. F.[4] and digitoxin U. S. P.[5] have their advocates. This paper will deal solely with digitoxin, including such preparations as "digitaline

1. von Jaksch, R.: Die Vergiftungen, ed. 2, Vienna, Alfred Hölder, 1910, p. 524.

2. Fahr, G., and LaDue, J.: A Preliminary Investigation of the Therapeutic Value of Lanatoside C (Digilanid C), Am. Heart J. **21**: 133 (Feb.) 1941. Moe, G. K., and Visscher, M. B.: Studies on the Native Glucosides of Digitalis Lanata with Particular Reference to Their Effects upon Cardiac Efficiency and Their Toxicity, J. Pharmacol. & Exper. Therap. **64**: 65 (Sept.) 1938. Nicholson, J. H.: The Intravenous Use of Lanatoside C, New England J. Med. **220**: 619 (Oct. 14) 1943. Erickson, E. W.: Action of a Glucoside of Digitalis (Lanatoside C) on Organically Diseased but Objectively Compensated Hearts and on Normal Hearts, Proc. Staff Meet., Mayo Clin. **20**: 283 (July 25) 1945.

3. (*a*) DeGraff, A. C., and Batterman, R. C.: Recent Advances in Digitalis Therapy with Particular Attention to the Use of Pure Glycosides, M. Clin. North America **26**: 929 (May) 1942. (*b*) DeGraff, A. C.: Clinical Comparison of the Cardiac Glycosides, New York State J. Med. **46**: 1803 (Aug. 15) 1946. (*c*) Rose, O. A.; Batterman, R. C., and DeGraff, A. C.: Clinical Studies on Digoxin, a Purified Digitalis Glycoside, Am. Heart J. **24**: 435 (Oct.) 1942. (*d*) Eichna, L. W., and Taube, H.: A Comparison of the Actions of Four Cardiac Glycosides on a Patient with Congestive Heart Failure, ibid. **26**: 631 (Nov.) 1943.

4. Kisch, B. Z.: Strophanthin, New York, Brooklyn Medical Press, 1944. Chavez, I.: Comparative Value of Digitalis and of Ouabain in the Treatment of Heart Failure, Arch. Int. Med. **72**: 168 (Aug.) 1943.

5. (*a*) Gold, H.; Kwit, H. T.; Cattell, M., and Travell, J.: Studies on Purified Digitalis Glycosides: IV. The Single Dose Method of Digitalization, J. A. M. A. **119**: 928 (July 18) 1942. (*b*) Gold, H.: Medical Progress: Problems in Digitalis Therapy, New York Med. **1**: 17 (Oct. 5) 1945; (*c*) Pharmacologic Basis of Cardiac Therapy, J. A. M. A. **132**: 547 (Nov. 9) 1946.

nativelle," "purodigen," "crystodigen" and the like.

Gold [6] recommended a single full digitalizing dose of 1.2 mg. of digitoxin, followed by 0.2 mg. daily for maintenance. As a result of his reports, particularly those included in the Cornell Conferences on Therapy[5b, c] digitoxin has practically replaced digitalis U. S. P. (digitalis leaf). Although Gold stated that his recommended dosage applied to only three fourths of his series of patients, not only has his average dose been adopted indiscriminately for all patients, but, worse still, much larger doses are prescribed. The dangers attending the administration of digitoxin have been lost sight of, and the drug has been greatly abused.

The following cases of digitoxin poisoning will serve the purpose of this report which is to draw attention to the need of close supervision of patients receiving the drug.

REPORT OF CASES

Case 1.—A man aged 40 was admitted to the Mount Sinai Hospital on May 14, 1946, with a diagnosis of chronic rheumatic heart disease, mitral stenosis and insufficiency and severe heart failure. During the two preceding days he had received 1.8 mg. of digitoxin ("digitaline nativelle"); on the day of admission 0.2 mg. was given twice. He received 0.1 mg. daily for the next four days, that is, until May 19, when the drug was stopped because multifocal premature contractions were observed. He was discharged on June 8. The first electrocardiogram, taken May 17, disclosed auricular fibrillation, a ventricular rate of about 80 per minute, distinct depression of the RS-T segments and inversion of the T waves in the three standard leads. On May 20, complete heart block appeared, with a ventricular rate of 35 to 60 per minute, and bigeminal rhythm due to multifocal premature beats was also present. On May 29, ten days after cessation of therapy, the ventricular rate was still slow, 38 to 75 per minute; an occasional premature beat was present, and the RS-T segments and T waves were only slightly abnormal. Three days later bradycardia and premature beats were still exhibited.

Case 2.—A woman aged 47, was admitted to the Mount Sinai Hospital on Jan. 13, 1946 and died ten days later with severe heart failure. The diagnosis was chronic rheumatic heart disease with mitral stenosis and insufficiency. She was hospitalized because of blurred vision, nausea, diarrhea, restlessness, confusion and semistupor. During the eleven or twelve days prior to admission she had received 6.0 mg. of digitoxin (an average of 0.5 mg. daily), in spite of the fact that she had previously been taking 1½ grains (0.097 Gm.) of digitalis daily.

The first electrocardiogram January 14 revealed auricular fibrillation with bradycardia (55 beats a minute) and distinct depression of the RS-T segment in leads 1, 2 and 4. On January 23, the day of death, nodal tachycardia appeared, and there were many supraventricular premature contractions.

Case 3.—A trail woman, weighing 90 to 95 pounds (40.8 to 43.1 Kg.), was seen in consultation on Aug. 14, 1946 because of recurrent attacks of pulmonary edema. She had had an acute coronary occlusion seven years previously and was moderately hypertensive. She had received three to five doses of 0.4 mg. of digitoxin intravenously within twenty-four hours. The patient became nauseated and vomited continuously, but the pulmonary edema cleared up. She died the following day.

Case 4.—A man aged 53 was admitted to the Mount Sinai Hospital on May 10, 1946, because of severe heart failure. Auricular fibrillation (cause unknown), pulmonary edema and pulmonary infarct of the lower lobe of the right lung were present. On the first day he received 1.8 mg. of digitoxin and the next day 0.4 mg., a total of 2.2 mg. within thirty hours. He died on the fourth day, May 13.

The electrocardiograms, taken May 10 and 11, disclosed auricular fibrillation with a ventricular rate of 200 beats per minute. On May 12, ventricular tachycardia had appeared, and electrical alternans and bidirectional ventricular premature beats were present. On May 13, the day the patient died, the auricular fibrillation reappeared, and the ventricular rate was approximately 180 beats a minute.

Case 5.—A man aged 38 had received 0.1 mg. of digitoxin ("purodigin") daily during January 1946 as a prophylactic measure against paroxysmal auricular flutter. He weighed 150 pounds (68 Kg.). When I saw him on February 16, he complained of yellow vision, abdominal cramps and bouts of diarrhea. The drug was discontinued and these symptoms disappeared. During the next two months digitoxin ("digitaline nativelle") was given intermittently in the same dose, 0.1 mg. daily, always with a return of visual and abdominal complaints. Electrocardiograms revealed auricular flutter, auricular tachycardia or partial heart block with dropped beats, but with a ventricular rate between 120 and 150 per minute.

Case 6.—A woman aged 59 had been operated on in 1945 for intestinal carcinoma. On Nov. 8, 1946 she had onset of pain in the upper part of the abdomen, which was interpreted as due to coronary disease. She was placed under treatment with digitoxin ("crystodigin") for one week, but the dose of this drug could not definitely be ascertained. There developed paroxysmal auricular fibrillation for one day, and the drug was stopped. On November 24 there was recurrence of pain. Although the patient weighed only 95 pounds (43.1 Kg.), she received 0.2 to 0.4 mg. of digitoxin daily. She became restless, disoriented and nauseated and vomited repeatedly. Leukocytosis, with a count of 11,000 to 13,000, developed, with a temperature of 102 to 102.5 F. Neurologists were called in for consultation but could find no evidence of organic cerebral involvement.

I saw the patient on December 12 and made a diagnosis of digitalis intoxication with digitalis psychosis. There was no evidence of heart failure or cardiac enlargement. The rhythm was irregular and rapid. Administration of the digitoxin was discontinued, but evidence of poisoning persisted in the electrocardiogram for three weeks.

The electrocardiogram taken on November 28 (fig. 1*A*) showed sinus tachycardia, with a rate of 155 per minute, RS-T depressions and inversions of the T waves in leads 1, 2 and 4. On December 12 (fig. 1*B*) there was partial heart block with dropped beats, i.e., Wenckebach periods, the ventricular rate being 115 to 120 a minute, and RS-T depressions and inversions of the T waves in leads 1, 2 and 4. Digitoxin was discontinued. The tracing of December 15 (fig. 2*A*) still revealed a 2:1 heart block with dramatic depressions of the RS-T segments and pronounced inversions of the T waves in all leads. On December 18 (fig. 2*B*) sinus tachycardia alternated with 2:1 heart block, but the RS-T depressions and inversions of the T waves were not quite so pronounced. On December 28 (fig.

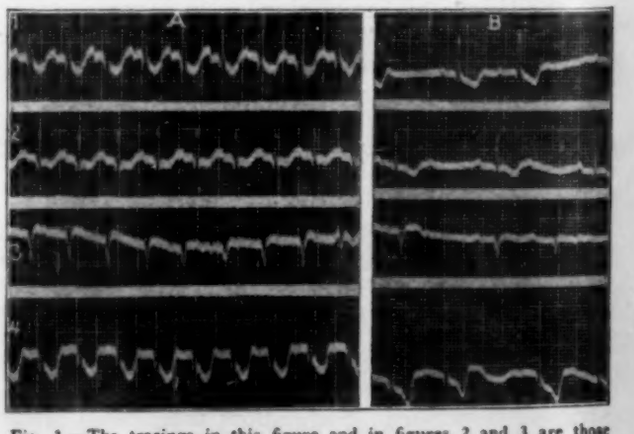


Fig. 1.—The tracings in this figure and in figures 2 and 3 are those of a woman aged 59, weighing 95 pounds (68.1 Kg.) with digitoxin intoxication. *A* (11/28/46), after administration of digitoxin, 0.2 to 0.4 mg. daily for five days, showing sinus tachycardia, with a rate of 155 per minute, and depression of the RS-T segments in leads 1, 2 and 4 and inverted T waves. *B* (12/12/46), after administration of digitoxin, 0.2 to 0.4 mg. daily for nineteen days. There were partial heart block (Wenckebach periods) with dropped beats, a ventricular rate of about 115 per minute and depression of the RS-T segments with inversions of the T waves in leads 1, 2 and 4. Digitoxin was discontinued.

6. Gold.[5a] Conferences on Therapy: Use of Digitalis, New York State J. Med. 42: 2043 (Nov. 1) 1942; Digitalis Versus Digitoxin, ibid. 45: 1676 (Aug. 1) 1945.

3 *A*) sinus tachycardia, with a rate of 120 a minute, was present, with the T wave semi-inverted in leads 1 and 2. On January 13 (fig. 3 *B*) the electrocardiogram was normal with regular sinus rhythm (rate, 95 a minute).

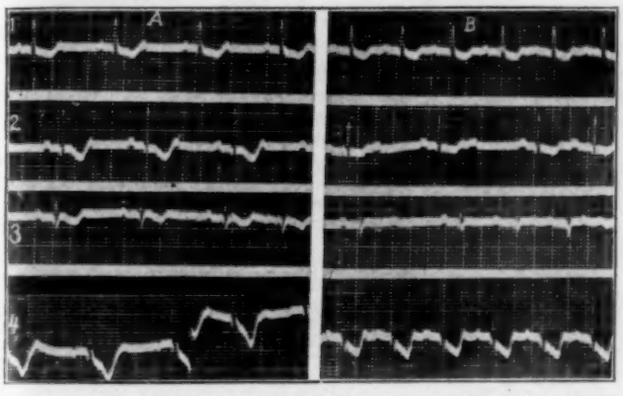


Fig. 2.—*A* (12/15/46), 2:1 heart block, with depression of the RS-T segments and inversions of the T waves in all leads. *B* (12/18/46), sinus tachycardia alternating with 2:1 heart block. The depressions of the RS-T segments and inversions of the T waves are not quite so pronounced.

Subsequent observation of the patient confirmed the impression that she did not have any organic heart disease. Thus, the cerebral symptoms and the arrhythmias were unquestionably produced by the digitoxin, and not by myocardial disease.

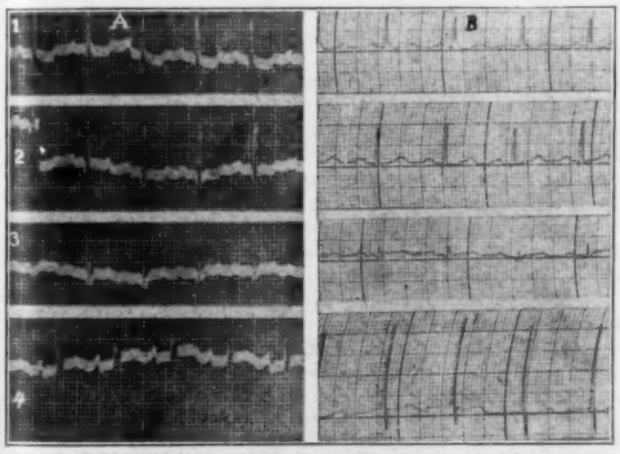


Fig. 3.—*A* (12/28/46), sinus tachycardia, with a rate of 120. The T waves in leads 1 and 2 are still semi-inverted. *B* (1/13/47), normal sinus rhythm, with a rate of 95. The tracing is now normal.

CASE 7.—A woman aged 71 was admitted to the Mount Sinai Hospital on May 8, 1946 for hypertensive vascular disease with heart failure. Digitalis had been prescribed before her admission, but the type and quantity of the drug were not ascertained. Although the patient weighed only 96 pounds (43.5 Kg.), she received 0.1 mg. of digitoxin daily, and occasionally 0.2 mg. Anorexia, nausea and vomiting developed. The drug was finally stopped on June 14. She was discharged on June 18.

The electrocardiogram on May 10 disclosed inverted T waves in lead 1 and supraventricular premature beats. The rate was 80 a minute. On June 12 there were numerous multifocal and bidirectional premature beats, with a rate of 150 a minute.

CASE 8.—A woman aged 60 was admitted to the Mount Sinai Hospital on Jan. 31, 1947 and died February 8. On admission she had severe epigastric pain, nausea and vomiting. Examination revealed mild fever, moderate leukocytosis, hypertension and, on the seventh day, definite evidence of heart failure. The electrocardiogram was typical of acute coronary occlusion with infarction of the anterior wall. Injections of mercury being unsuccessful, on the eighth day 0.8 mg. of digitoxin was administered intravenously, and the patient died one minute later.

In this case the patient's acutely damaged myocardium undoubtedly increased her susceptibility to digitoxin.

CASE 9.—A man aged 59 had a history of acute coronary occlusion nine years prior to the present admission and heart failure six years later. Although he had received digitalis and mercurial injections, this medication was discontinued six weeks before his admission to the Mount Sinai Hospital, on Feb. 25, 1947.

He was dyspneic and orthopneic, with pulmonary congestion and venous distention, enlargement of the liver and edema of the ankles. On the evening of admission he received 1.2 mg. of digitoxin orally and 2 cc. of meralluride N. N. R. ("mercuhydrin") intramuscularly. An electrocardiogram taken the following day revealed complete heart block and auricular tachycardia, with an auricular rate of 150 to 155 and a ventricular rate of 80 per minute. Furthermore, there were numerous ventricular premature contractions, often producing bigeminy. Clinically, the patient exhibited no manifestations of digitalis poisoning, but, of course, the digitoxin was discontinued. On February 27 the auriculoventricular dissociation was still present, with periods of 2:1 block. Sinus rhythm was observed the next day, but the P-R interval was prolonged to 0.28 second.

In this case the single oral dose of 1.2 mg. of digitoxin was excessive. The only evidence of digitoxin intoxication appeared in the electrocardiogram.

The symptoms of digitoxin poisoning, as observed in the foregoing cases, do not differ from poisoning with other types of digitalis. Since digitoxin has a definite cumulative action,[7] the toxicity persists longer than that after other preparations of digitalis. Hence, great caution is necessary in its administration. If the method outlined by Gold and his co-workers for the use of digitoxin were followed in detail, the adverse effects so frequently encountered would probably be lessened. These authors pointed out that their dose was an average one and did not apply to all patients, a fact often overlooked. Relatively larger doses of digitoxin than of digitalis U. S. P. (digitalis leaf) are prescribed because the dose of the former seems so small. Digitoxin is prescribed in decimals of a milligram, just one-thousandth the strength of the dose in which digitalis U. S. P. is given—namely, in decimals of a gram.

Although the danger of the relatively long latent period and cumulative action or slow dissipation of digitoxin is real, I believe that many, if not all, of the untoward effects of this drug have resulted from its careless, haphazard use. The dosage of 1.2 mg. as a single average digitalizing dose and of 0.2 mg. for maintenance has often been indiscriminately applied to patients regardless of weight, without proper surveillance of the patient and without awareness of the dangers involved in using the drug. A patient weighing only 95 pounds (43.1 Kg.) is often given the same dose —0.2 mg. daily—as is one who weighs 150 to 225 pounds (68 to 102 Kg.). In this regard it is probably significant that the Varick Company, which markets "digitaline nativelle," used to advertise 0.1 mg., and not 0.2 mg., as the average daily maintenance dose, but recently has altered its advertisement and gives the maintenance daily dose as varying between 0.05 and 0.2 mg. Unless each patient is treated individually and the proper dose carefully determined, it is safer to use digitalis U. S. P. than digitoxin.

SUMMARY

Digitoxin has practically replaced digitalis U. S. P. (digitalis leaf), but the dangerous aspects of its administration have been disregarded and digitoxin intoxication has become frequent.

7. DeGraff and Batterman.[8a] Hoffmann, A.: Funktionelle Diagnostik und Therapie der Erkrankungen des Herzens und der Gefässe, Wiesbaden, J. F. Bergmann, 1911, p. 412.

Clinical observations confirm the pharmacologic fact that digitoxin has the greatest cumulative action (slowest dissipation) of all the glycosides.

Nine cases of digitoxin intoxication are reported. The symptoms included nausea, vomiting, blurred and yellow vision, abdominal cramps, diarrhea, restlessness, mental confusion, disorientation and psychosis. Premature contractions, bigeminy, trigeminy and multifocal bidirectional premature beats; tachycardias of auricular, nodal and ventricular origin with rapid ventricular rates; auricular fibrillation and auricular flutter; partial and complete heart block, and electrical alternans were observed.

Since the therapeutic dose of all digitalis drugs is 50 to 60 per cent of the toxic dose, a relatively small additional amount may be sufficient to cause a toxic reaction. The administration of digitoxin, like that of any other preparation of digitalis, because of the variability in absorption, excretion and therapeutic effect, is an individual experiment.

The dosage of 1.2 mg. as a single digitalizing dose and of 0.2 mg. for maintenance has often been applied indiscriminately to patients regardless of weight, without proper surveillance of the patient and without awareness of the dangers involved in using the drug. It must be remembered that the daily maintenance dose of digitoxin varies from 0.05 to 0.2 mg.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

WESTERN ELECTRIC HEARING AIDS, MODELS 65 AND 66, ACCEPTABLE

Manufacturer: Western Electric Company, Inc., 120 Broadway, New York 5.

MODEL 65

As exemplified by instrument A 0023, Model 65 is a self-contained hearing aid encased in plastic. A hinged cover gives access to the battery compartment, which is at the back of the case. It is connected to the magnetic receiver by a plastic-covered cord with plugs at both ends. Two receivers were supplied.

WESTERN ELECTRIC MODEL 65

WESTERN ELECTRIC MODEL 66

Two wheel-type controls are placed at the top of the instrument. One is the volume control, the other is a combination switch tone control and gives three tone settings. On each side of the instrument wearing clips are so placed that the opening of the microphone will be above the edge of the pocket.

The following data were obtained by a Council investigator:

Dimensions and Weight.—Dimensions: Length 10.9 cm. (4⅓ inches); thickness 2.1 cm. (5/10 inch), and width 6.2 cm. (2½ inches). Weight: 172 Gm. (6 ounces).

Battery Data.—Usable Batteries: A, 1½ volts; B, 15 volts.

Battery Drain Measurements

Battery	Voltage	Current
A	1.4 volts	42 milliamperes
B (Quiet)	15 volts	0.46 milliampere
(Squealing)	15 volts	0.24 milliampere

Acoustical Gain.—Measurements were made of the acoustic gain in decibels. This is the decibel difference between the sound pressure at the face of the microphone of the instrument and the pressure produced by the receiver in the 2 cc. coupler. The pressure at the face of the microphone was held at approximately 55 decibels above zero level for these measurements (55 db. above 0.0002 dyne/sq. cm.). Following is a tabulation of typical acoustical gains:

		Frequencies							
Volume	Tone	256	512	1,024	1,200	2,250	3,100	4,096	Receiver
Full	1 dot	13	23	36	37	47	35	17	724 B
Full	3 dots	28	39	47	48	53	40	20	724 B
Full	3 dots	30	42	54	60	55	42	25	724 A

Below are approximate values of maximum sound pressure levels (at four frequencies) set up in the 2 cc. coupler with the volume set for full gain and tone setting at 3 dots:

Frequency	Input Level	Maximum Output Level
600 cycles	80 db.	124 db.
1,024 cycles	70 db.	121 db.
1,200 cycles	70 db.	129 db.
2,048 cycles	65 db.	116 db.

Intelligibility tests were made with a person of normal hearing seated inside a booth giving about a 30 decibel sound reduction. The speaking person was outside the booth using normal speaking voice. Score made with the Harvard number 9 lists under these critical conditions was 70 per cent.

MODEL 66

As exemplified by instrument B 1165, Model 66 is a self-contained hearing aid encased in plastic. The removable lower half of the case is the battery housing. Connections with the magnetic receiver are by a plastic-covered cord with plugs at both ends. Two receivers were supplied with the instrument.

At the top of the case are two wheel-type controls, of which one is the volume control. The other is a combination switch tone control giving three tone positions. A wearing clip on the front of the case is placed so that the opening of the microphone will be above the edge of the pocket.

Dimensions and Weight.—Dimensions: length 12.5 cm. (5 inches); thickness 3.8 cm. (1½ inches), and width 6.5 cm. (2¾ inches). Weight: 250 Gm. (9 ounces).

Battery Data.—Usable Batteries: A, 1½ volts; B, 22 volts.

Battery Drain Measurements

Battery	Voltage	Current
A	1.35 volts	42. milliamperes
B (Quiet)	21.8 volts	0.72 milliampere
(Squealing)	21.8 volts	0.52 milliampere

Acoustical Gain.—Measurements were made of the acoustic gain in decibels. This is the decibel difference between the sound pressure at the face of the microphone of the instrument and the pressure produced by the receiver in the 2 cc. coupler. The pressure at the face of the microphone was held at approximately 55 decibels above zero level for these measurements (55 db. above 0.0002 dyne/sq. cm.). Following is a tabulation of typical acoustical gains:

		Frequencies							
Volume	Tone	256	512	1,024	1,200	2,250	3,100	4,096	Receiver
Full	1 dot	14	26	32	34	41	40	34	724 C
Full	3 dots	44	51	50	50	50	47	40	724 C
Full	3 dots	49	58	67	72	63	48	31	724 A

Below are approximate values of maximum sound pressure levels (at four frequencies) set up in the 2 cc. coupler with the volume set for full gain and tone setting at 3 dots.

Frequency	Input Level	Maximum Output Level
600 cycles	75 db.	129 db.
1,024 cycles	65 db.	130 db.
1,200 cycles	65 db.	135 db.
2,048 cycles	70 db.	123 db.

Intelligibility tests were made with a person of normal hearing seated inside a booth giving about a 30 decibel sound reduction. The speaking person was outside the booth using a normal speaking voice. Score made with the Harvard number 9 lists under these critical conditions was 60 per cent.

The Council on Physical Medicine voted to include the Western Electric Hearing Aids, Models 65 and 66, in the list of accepted devices.

MAICO STETHETRON ACCEPTABLE

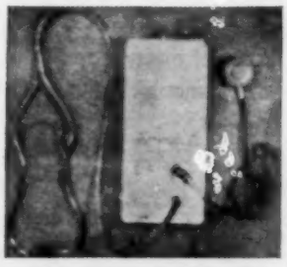
Manufacturer: Maico Company, Inc., 21 North Third Street, Minneapolis.

The Maico Stethetron consists essentially of three parts: (1) a receiving or auscultating part intended to be placed in contact with the patient's chest or other structure to be auscultated, (2) a case housing the amplifying apparatus and (3) the familiar V shaped binaural arrangement of tubing to convey the amplified sounds to the physicians' ears. The three parts are all contained in a leather carrying-case whose over-all dimensions do not exceed 21.2 by 9.8 by 4.4 cm. (8⅜ by 3⅞ by 1¾ inches). The amplifying apparatus is said by the company to include tubes which are high gain hearing aid pentodes, and the output tube is stated to be capable of delivering 10 milliwatts of audio power.

The apparatus as a whole may be described as an electronic stethoscope and is designed to amplify the sounds ordinarily heard in auscultation; it is intended to aid physicians who are hard of hearing and students who are learning to auscultate.

The pickup is designed primarily to change cardiac and pulmonary sounds into electrical voltages by means of a piezoelectric crystal. The pickup is stated to be highly sensitive to vibrations produced by body sounds but relatively insensitive to airborne or acoustical vibrations. The electric impulses are amplified and then converted into acoustical vibrations by a dynamic transducer. The output of the transducer is fed into a binaural headset so that the amplified heart sounds reach the physicians' ears in the same manner as they would through an ordinary stethoscope.

The electrical power gain of the Stethetron is stated to be about 90 decibels. The power is supplied by an A battery of 1½ volts and a B battery of 45 volts. The average current drain on the A battery is about 80 milliamperes, and with normal use it is expected to last about one hundred hours. The average current drain on the B battery is about 2 milliamperes, and with normal use it is expected to last about two hundred and fifty hours.



THE MAICO STETHETRON.

Since the impairment of hearing is generally not uniform through the range of audible frequencies, and since the pattern of impairment varies from one user to another, the Stethetron is provided with a tone control, or emphasis filter, giving six possible positions. The green dot position of the emphasis filter attenuates the lower frequencies, thereby emphasizing sounds of systolic and diastolic murmurs. The red dot position disconnects the emphasis filter entirely, giving a fairly uniform response from 50 to 1,000 cycles per second, for listening to peristaltic sounds and respiratory sounds. The blue dot position emphasizes frequencies around 250 cycles per second. The yellow position emphasizes frequencies around 175 cycles per second. The white dot position emphasizes frequencies around 125 cycles per second, suitable for listening to presystolic murmurs. The black dot position emphasizes frequencies around 90 cycles per second and is used for systolic and diastolic sounds.

Additional possibilities of this instrument are as follows: 1. A booster unit, consisting of a battery-operated amplifier, can be connected to permit simultaneous listening by from six to twelve physicians or students. 2. A record-playing attachment is available. 3. The output terminals of the Stethetron can be connected to the input terminals of an oscilloscope. 4. It is possible to connect the instrument to a loudspeaker for classroom purposes. 5. Permanent records can be made by using direct-inking equipment, tape recorders and wire recorders.

The device was used and studied by a number of physicians, who submitted reports to the Council. The consensus was that the instrument is effective as an aid to physicians who are hard of hearing. While there was no doubt expressed as to its value as a teaching appliance when used in conjunction with some of the aforementioned accessories, there was disagreement as to its value in teaching actual auscultation to the medical student or in discriminating (by the use of the tone control, or emphasis-filter) between sounds of different quality.

The Council on Physical Medicine voted to include the Maico Stethetron in its list of accepted devices.

Clinical Notes, Suggestions and New Instruments

CONTACT DERMATITIS DUE TO "FINGER PAINTS"

NORMAN TOBIAS, M. D.
St. Louis

The literature does not disclose any reports of contact dermatitis due to "finger paints." Finger paints are creamy paints which are sold in sets of six colors and which when applied to a special wetted paper with the fingers or forearms result in an unusual tinctorial effect. The designs or patterns may be changed by blending the various colors. The product is popular with children and has been used by adults as a form of occupational therapy. A case is reported in a boy who had contact dermatitis from the paint on his face, fingers and forearms. The manufacturer did not reply to the letter requesting information regarding the formula, so that the particular sensitizer is not known at this time.

Some cases are probably being diagnosed as poison ivy dermatitis or even erysipelas by general practitioners who are unfamiliar with this contactant.

Report of Case

J. K., aged 8, had an acute erythematovesicular dermatitis in the interdigital spaces of his right hand four days after first using the finger paint; the dermatitis appeared on the dorsal surface the next day. Three days later a similar eruption, patchy and linear in character, appeared on the right cheek, midforehead and left forearm. Mild itching was present. The paints were used about fifteen minutes daily. Although the preparation is easily washed off with water, the boy had apparently rubbed his face with his fingers, which explains the eruption on the cheek and forehead. The patch on the left forearm was caused by using that part to rub the paints on the paper.

A patch test with the red paint was applied to the left arm the day after consultation. Within twenty-four hours, there was a 3 plus reaction. Patch tests on 3 normal controls were negative in result. Treatment consisted of a mild astringent lotion, with complete recovery within a week.

Summary and Conclusions

The exact sensitizer or sensitizers in the finger paint were not determined. It is possible that a plasticizer may be causative. Schwartz[1] stated that "a great many pigments are used in paint but they are rarely the cause of dermatoses."

From the Department of Dermatology and Syphilology, St. Mary's Group of Hospitals, St. Louis University School of Medicine, Dr. G. V. Stryker, Director.

1. Schwartz, L.; Tulipan, L. and Peck, S. M.: Occupational Disease of the Skin, Philadelphia, Lea & Febiger, 1947.

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SATURDAY, JUNE 5, 1948

EDITORIAL ANNOUNCEMENT

The absence of the compositors from their work continues. This issue of THE JOURNAL has been prepared in part by the use of Vari-Typer machines.

THE BROOKINGS REPORT ON COMPULSORY HEALTH INSURANCE

When the Congress passed the Social Security Act, provisions were made for the regular expenditure of governmental funds in the study of medical care. The misuse and abuse associated with such expenditures under the administration of Isidore Falk, who is responsible to Mr. Altmeyer and the Federal Security Administrator, has been so frequently described that repetition would be boresome. What should have been a scientific investigative agency has been perverted into a group who manipulated statistics and assembled data for propaganda purposes. After many years investigations have been made by congressional committees and other groups. Eventually, no doubt, this particular "chicken will come home to roost."

Recently the Senatorial Subcommittee on Health of the Senate Committee on Labor and Public Welfare requested the Brookings Institution, a nonprofit agency which has functioned for many years on an independent basis, to make a study of compulsory health insurance, as the committee was concerned with several bills on this subject. The conclusions and recommendations have been furnished to the Senate committee. The Brookings Institution decided, because of the wide public interest in the subject, to make the full study available in printed form. The report is made by Dr. George W. Bachman and Dr. Lewis Meriam. Dr. Bachman has had wide experience in experimental medicine and public health on the faculties of Chicago, Johns Hopkins and Columbia universities and for eleven years directed the School of Tropical Medicine in Puerto Rico. Dr. Meriam's previous work in the Census and Children's bureaus, in a survey of the Indian Administration and in many studies of state government, relief and social security, indicates his qualification for the task. With these two leaders several staff members of great repute were associated. Every physician should secure and study this important book.

The report defines the two major plans now under consideration by the national government: the grants-in-aid plan and the compulsory health insurance plan. First to be answered is the common question, "How bad are health conditions in the United States?" Comparisons are made with other countries as well as comparisons between the individual states. The draft data have been studied, and consideration has been given to the effects of various systems on the practice of medicine and on the cost of medical care. The investigators were also concerned with the availability of medical personnel, with administrative costs and many related problems. As a result of the analysis of a vast amount of carefully developed evidence, positive answers are made to many controversial questions.

A study of mortality rates throughout the world has warranted three conclusions: (1) that the United States had made enormous advances since the turn of the century; (2) that it is now among the most healthful nations of the world, and (3) that its white population is fast approaching, if it has not already reached, the point at which the rate of advance will be much retarded. The significance of these conclusions cannot be overestimated.

Here is the answer to the continuous reiteration by propaganda groups that various nations are superior to the United States in maternal and infant mortality, or that there are great areas of our nation without adequate medical care, or that we are clearly outclassed by New Zealand or Denmark or some other small country that either has a homogeneous population or does not count its native population. The figures indicate that our white population has reached such a high record as regards its health that further reduction in death rates is going to be exceedingly difficult and perhaps impossible.

Again it becomes clear that the mortality rates among the nonwhite persons are unfavorable. However, the Brookings report brings out that more and better medical care is not the only requirement. In fact the advantages to be gained by more and better medical care

are minor as contrasted with improvements in economic, educational, cultural and social conditions needed by our colored populations.

In this Brookings report is another analysis of the Selective Service statistics. For some years the proponents of compulsory sickness insurance and state medicine have been reiterating to the point of monotony the argument that Selective Service statistics indicate that we are a nation of weaklings with millions of young men incapable of rendering military service and with millions suffering from preventable and curable defects. A careful study by Friedman in Washington was the first important and devastating blow to these arguments and to the parrot-like mutterings made by the inside ring of the Committee on the Nation's Health that used them for propaganda. Now comes this study of the Brookings Institution with an analysis which proves that the Selective Service statistics actually demonstrated the exceedingly high quality of medical care in our country. The Selective Service statistics are not helpful in any consideration of proposals to alter arrangements for the provision of individual medical care. A special chapter on the subject comes to a conclusion worthy of quotation:

> Medical care, however adequate, cannot prevent certain diseases, conditions, or impairments. It cannot invariably effect a cure or restoration that will bring the individual up to or above the minimum standard for rigorous physical activity such as that used for the armed forces. It may and does enable the victims of accidents and many diseases to live and to support themselves and those dependent upon them. It seems almost certain that the better the medical care in a country the larger the number of its people who will be living despite accidents, illnesses, and impairments. A Spartan program of eliminating the physically and mentally unfit would yield a higher percentage suitable for military service than would a program of doing everything possible through medical care to preserve life and to enable persons to make that life worth while, despite conditions that make them ineligible for military service.

The attention of the Brookings group is turned to some of the so-called health surveys that have been made since 1930 with a view to determining the nature, distribution and cost of medical care in the United States. One analysis concerns the investigation made under the Committee on the Costs of Medical Care, which have constituted a sort of bible for most of the proponents of compulsory sickness insurance. There was no scientific objective standard of what constituted an illness or a condition which required treatment which was applied to all regardless of income. Attention is also given to the National Health Survey which was conducted by the Works Progress Administration under the auspices of the United States Public Health Service. A single sentence seems to define the failure of that survey for all practical purposes. The sentence concerns persons with incomes under $1,000 or those on relief: "It is difficult to determine whether their poverty was due to their illness or their illness due to their poverty."

The Brookings report also sets forth the basic arguments for and against voluntary sickness insurance and compulsory insurance. Its conclusions are so important that they are here quoted in full:

1. Probably no great nation in the world has among its white population better health than prevails in the United States. A few small homogeneous countries, such as New Zealand with respect to its white population, are slightly ahead of the United States, as a whole, but certain states of the United States with larger populations equal them.
2. It is apparent that the United States under its voluntary system of medical care has made greater progress in the application of medical and sanitary science than any other country. This progress is now reflected in low mortality and morbidity rates of infectious diseases and in increased life expectancy. There is every reason to believe that these trends will continue unabated under our present system of medical care.
3. The nonwhites in the United States have materially poorer health than the whites, but the evidence does not indicate that this condition is primarily or even mainly due to inadequacy of medical care.
4. The advances in health among both the whites and the nonwhites that have been made in the United States in the past four decades do not suggest basic defects in the American system.
5. Although the statistics resulting from the administration of the Selective Service Act—the so-called draft statistics—have been widely used to show bad health among the American people and the need for revolutionary changes in arrangements for medical care of individuals, they are unreliable as a measure of the health of the nation and cannot be used to show the extent of the medical needs of the country as a whole.
6. Present medical care in the United States compares favorably with that which existed in other leading nations prior to the second World War.
7. The conditions in extremely poor rural areas that lack the resources to support adequate public services, such as health work, education, and highways, cannot be satisfactorily solved by subsidies. This problem calls for a radically different approach, either bringing in new or improved economic activities or getting the people to more favorable and administratively less expensive areas. This condition has been accentuated by the emigration of youth from these areas to urban communities.
8. The United States has some individuals and families not possessed of the resources to enable them to pay for adequate medical care. In the future, as in the past, provision must be made for them through public funds or philanthropy. The evidence suggests that many of them are elderly, impaired or underendowed or are widows or deserted women or their dependents. It is doubtful that they could be effectively covered by compulsory insurance because they would lack the means to attain and maintain an insured status. The large majority

of American families have the resources to pay for adequate medical care if they elect to give it a high priority among the several objects of expenditure. The issue is not whether they can afford medical care but whether they should be compelled by law to pool their risks and to give payment for medical care a top priority. The major alternative for people with ability to pay is to leave them free to determine for themselves what medical care they desire and whether they will pool their risks through voluntary arrangements.

9. Compulsory health insurance would necessitate a high degree of governmental regulation and control over the personnel and the agencies engaged in providing medical care. This field of regulation and control would be far more difficult than any other field previously entered by the government, and past experience with governmental regulations and control in the United States causes doubt as to whether it encourages initiative and development.

10. The problem of eliminating politics from government administration is extremely difficult. It does not seem probable that politics could be eliminated from medical care supplied under a governmental system.

11. Compulsory insurance would inject the government into the relationship between practitioner and patient. A real danger exists that government actions would impair that relationship and hence the quality of medical care.

12. The administration of compulsory insurance would require thousands of government employees for accounting, auditing, and inspection and investigation.

13. The cost of medical care presumably would increase because of (*a*) administrative expenses; (*b*) the tendency of insured persons to make unnecessary and often unreasonable demands upon the medical care services; and (*c*) the tendency of some practitioners and agencies to use the system for their own financial advantage.

14. The adoption of compulsory insurance would not immediately make available adequate medical service for all, because there are not at present the facilities nor a sufficient number of trained and experienced physicians, dentists, and nurses to meet the demand which would result from compulsory insurance.

15. Proposals for compulsory insurance provide for payment of practitioners under one or all of three methods: (*a*) fee for service, (*b*) per capita, or (*c*) salary. Use of the fee-for-service device represents the minimum degree of socialization, but it is administratively difficult. Administrative difficulties would probably result in the adoption of the per-capita system which represents a higher degree of socialization or even in the salary system which represents practically complete socialization. It seems questionable whether a country which once embarks on compulsory insurance can turn back but must attempt to remedy defects by more complete government control and administration.

As a result of these studies and the conclusions reached, the report of the Brookings Institution says that the national government would be wise to leave to the individual states the question of whether compulsory health insurance is to be adopted or whether the provision of professional services is to be left in the realm of free enterprise. They believe it is highly improbable that experimentation with a variety of plans will ultimately develop a single pattern applicable to all sections of the country. For the time being, the report suggests, the national government and many of the state governments may well devote their resources and energies to:

a. Research and developments in the fields of public health.
b. Health education at the school level.
c. Teaching of preventive medicine.
d. Assisting in the acquisition of physical facilities and training of personnel.
e. Providing systematic care for the indigent and the medically indigent.

Especially important, however, is a recommendation from the point of view of the proper place of government in educating the public with regard to medical care. Recommendation no. 3 says:

From the standpoint of public relations, governments might be well advised to leave adult educational campaigns for the control and prevention of disease to the national, state, and local voluntary organizations, which have been able to enlist the active cooperation of leading laymen in most sections of the country. It must be remembered that good health is not exclusively a matter of medical care; it also impinges upon causative factors that are nonmedical, such as food, shelter, vice and crime, transportation, and industry. Its maintenance depends also upon the intelligence, interest, and cooperation of individuals, families, and local communities.

Finally, an analysis is made of the changes that have taken place in the United States since 1932 in medical care, and here is the concluding paragraph:

The experience of the United States since 1932 seems to have demonstrated the wisdom of these recommendations of the majority of the members of the Committee on the Costs of Medical Care. It would seem unwise at this time to substitute for these developments a system of compulsory health insurance by national law which would have the unfortunate tendency to freeze policies and eventually retard medical progress.

When the original report of the Committee on the Cost of Medical Care appeared in 1932 THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION urged evolution. The majority of the Committee on the Cost of Medical Care did not at that time recommend compulsory sickness insurance although they did say that "such a step may ultimately be necessary and desirable in some states."

Notwithstanding the recommendations of even the majority of the Committee on the Cost of Medical Care, agencies devoted to propaganda have consistently and persistently since that time urged a nationwide state-controlled compulsory sickness insurance. Even at this very moment these agencies are vociferous in their arguments and have the support of President Harry S. Truman. Moreover, as has already been mentioned, the agency for the study of medical care in the Federal Security Agency has been from the first an agency of propaganda rather than an agency for scientific study. The report on "The Issue of Compulsory Health Insurance" by George W.

Bachman and Lewis Meriam, published by the Brookings Institution, should bring a blush of shame to the cheeks of even these hardened advocates of government medicine. Surely they will recognize now the difference between a scientific objective study of dependable evidence and the kind of promotional publicity that they have been turning out in pseudo-scientific documents since they first began collecting a living from government sources.

Current Comment

PSYCHOTHERAPY

Several much discussed and little understood basic theories underlying psychotherapy have recently been discussed by Karpman,[1] who calls attention to three concepts. Conventional psychiatry still emphasizes the physical approach and looks for physical factors which may explain or be responsible for so-called functional mental diseases. Psychopathology also moves essentially along the level of conventional psychiatry, emphasizing the importance of personality without giving clues to the origins of personality make-up and resources. The psychodynamic approach works primarily with the patient as an individual, centering the entire weight of treatment on him rather than on the external environment. The psychodynamic approach cannot be satisfied with mere observation and interview but goes beyond in an attempt to find basic causations. All that is obtained on a conscious or intellectual basis is disregarded, and only unconscious material obtained through free association and dream analysis is considered. Minor psychotherapy is practiced chiefly by physicians who are committed to the organic approach and who are unwilling or unable to see the psychodynamics back of mental disease. They fail to understand the manifestations of the unconscious, the psychic mechanisms and processes and the role that symbolization plays in our lives. Major psychotherapy (psychoanalysis) presents fundamental differences from other psychiatric disciplines, being oriented in psychodynamics which recognizes the unconscious as the most dynamic aspect of life. Psychodynamics demonstrates how the principles of homeostasis are applied in our psychic life, as instanced by the pleasure-pain principle, the elucidation of emotions as energy manifestations flowing out of instincts and the importance of increasing depth of insight. Finally, psychodynamics is stated to be in a position to make definite contributions to other sciences such as physics, pathology, sociology and the humanities in general. Frequently the advancement of knowledge gains by review and analysis of current practices. The contribution of Karpman will inspire psychiatrists to evaluate more closely the technics they now employ.

1. Karpman, B.: Psychotherapy, Minor and Major, Quart. Rev. Psychiat. & Neurol. 2:553-579 (Oct.) 1947.

CHEMOTHERAPY OF LEUKEMIA

The cytotoxic action of urethane (ethyl carbamate) and of mustard gases in animals led to experiments with these substances in animal tumors and the treatment of human leukemia and other neoplastic diseases. Many reports on the results of this chemotherapy have been published.[1] Hirschboeck and associates[2] have reviewed the clinical reports and submitted an instructive discussion. In chronic myeloid leukemia and to a lesser degree in lymphatic leukemia urethane in proper doses decreases not only the lymphocytes in the blood but also the size of lymph nodes, spleen and liver. Studies are lacking of these organs and of the marrow in patients treated with urethane. Thus far apparent cure of leukemia by urethane has not been recorded. The reduction in white blood cells, especially lymphocytes, and other substantial palliative effects appear to have been temporary only.[3] The use of urethane is not without danger, as yet the best dosage and methods of administration under different conditions have not been worked out fully. Like arsenical compounds, urethane may be of use as an adjunct to roentgen therapy in myelogenous leukemia. With nitrogen mustard gas Alpert and Peterson[4] obtained results against Hodgkin's disease and lymphosarcoma which they classified as spectacular, fairly good and poor. In the favorable cases recurrence was common. The remissions under chemotherapy in leukemia, lymphosarcoma and other cancers are of great scientific interest and present openings for further research. Certainly the actions of nitrogen mustard and also of urethane as adjuncts to roentgen treatment in Hodgkin's disease invite careful investigation. From a review of clinical and experimental work with the nitrogen mustards Rhoads[5] concludes that in the nitrogen mustards there is available a chemical tool by which can be obtained in Hodgkin's disease and certain cases of lymphosarcoma results about as good as, but not much better than, those obtained by x-ray. Perhaps new chemical agents will be found which may be more effective than those now under study.

1. Moulton, F.R.: Approaches to Tumor Chemotherapy, Washington, D.C., American Association for the Advancement of Science, 1947.

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ORGANIZATION SECTION

NATIONAL CONFERENCE ON RURAL HEALTH

Third Annual Meeting, Palmer House
Feb. 6 and 7, 1948

(Continued from page 473,
THE JOURNAL, MAY 29, 1948)

Saturday Morning, February 7

RURAL SCHOOL HEALTH PROGRAM

DR. G. F. MOENCH, Hillsdale, Michigan, Director, Hillsdale County Health Department; Chairman, National Advisory Committee, Health and Summer Round-up for Parent-Teachers Association, Presiding.

The School Lunch Program

Mrs. J. LANING TAYLOR, Director, Educational Department, the National Cooperative Milk Producers Federation, Washington, D.C.: Every nutritional survey in the past decade has shown that many school children are victims of malnutrition. Federal aid for school lunches was first made available not as a nutritional program but as part of a program to expand markets for farm products. Funds were appropriated only to pay for labor for preparing and serving the lunches; the government donated the food supplies. This program originated in 1933 when we were in the midst of vast unemployment The problem was to utilize food surpluses and to get the food to the persons who needed it. This was done through governmental purchase and distribution. In 1940 a school milk program made milk available in many schools; in 1943 the nutritional factor became a requisite for local school lunch sponsors in securing federal funds. The federal program then became a cash indemnity system with the government authorized to reimburse the states for part of the expense of serving a nutritionally adequate lunch. It was in this form that the National School Lunch Act of 1946 made the program permanent. In addition, direct distribution of food to schools has been continued by the U. S. Department of Agriculture.

During 1936-1937 the U.S. Department of Agriculture conducted investigations in sixty-six counties in five broad geographic regions. The results indicated that with respect to seven nutrients--protein, calcium, phosphorus, iron, vitamin A, thiamine and ascorbic acid--fewer than one fifth of the families of this country had food supplies in 1936 that met the recommendations in an optimum diet of the Food and Nutrition Committee of the National Research Council. About one fourth of the rural families were in this category and one fourth of them also fell short of the recommended dietary goals in calcium and/or vitamin A, one half or more with respect to thiamine, riboflavin and/or ascorbic acid.

In Boone County, Indiana, which is above average economically and where farmers raise most of the food they need, a survey made in 1946 of 3,000 pupils from first grade through high school showed that (1) 20 per cent of the children ate no breakfast; (2) a majority of the children ate packed lunches which were usually nutritionally inadequate, and (3) about 15 per cent of the children had the same food at the evening meal as had been served at the noon meal. They had too little fruit, and the meals were not balanced. Food was eaten frequently between meals. In general, consumption of milk was low. The best average in the county by schools was two and one-half cups (a little over 1 pint, 473 cc.) a day to a low of four cups (1 quart, 946 cc.) per week in any form. There was ample food, but not the right kind. A twelve year continous study of 10,000 Pennsylvania school children showed that "85 per cent failed to exhibit reasonably good nutrition in one or more respects." In Minnesota a seven day dietary survey of 1,080 pupils in rural, town, suburban and city schools showed that 40.2 per cent had poor diets, 32.2 per cent fair diets and only 27.6 per cent good diets. In Georgia, Maryland and Michigan the data were similar.

Dr. W. H. Sebrell, of the U.S. Public Health Service, and chief, Division of Physiology, National Institute of Health, cited to the House Committee on Agriculture many recent studies made throughout the country which revealed that school children were suffering from inadequate diets. Among these were the following:

1. In a study of Texas school children, about 20 per cent of those examined were anemic enough to need medical treatment. This type of anemia was due to insufficient iron.
2. A survey of 200 children in West Virginia showed that 54 per cent were getting poor or bad diets.
3. In an area in Vermont the children's teeth were outstandingly poor; 1 in 4 had spongy gums, probably due to deficiency in ascorbic acid.
4. A dietary survey of more than 1,100 Maryland school children revealed that only 8 per cent had an adequate diet.

A study conducted by the Department of Home Economics of the Florida Agricultural Experiment Station covering the period 1940-1945 started with 186 children from a strictly rural community. Ninety-four of the children ate regularly in the lunch room for four years, and 82 were present for the entire period of five years. The school lunch was prepared under the direction of a dietitian and met optimal standards. The principal result was the shift from a pronounced clinical deficiency to a condition of near sufficiency. Also, the hemoglobin values of both sexes and all ages increased during the school year and decreased during vacation.

So in 1946 when there were no agricultural surpluses and employment was at an all time high the Congress passed the National School Lunch Act. Although partly financed by federal funds, the school lunches are still a community affair. Any group that is interested can cooperate with school officials in initiating and carrying out the program. The sponsor, however, must be a school official and the school must be a public or nonprofit private school of the high school level or under. The following limiting requirements must be met: (1) the program must be operated on a nonprofit basis; (2) lunches must meet the nutritional requirements set up under the act by the Department of Agriculture, and (3) the lunch must be available to all children, regardless of their ability to pay and without discrimination.

The diet pattern for three types of lunches has been set up with the rates of reimbursement dependent on the type of lunch served. The type A, or complete lunch, receives the highest rate of reimbursement at a maximum of 9 cents per lunch. The requirements for this lunch are ½ pint (237cc.) of whole milk as a beverage and the following or their equivalent: (1) 2 ounces (54.7 Gm.) of lean meat, poultry, fish or cheese; (2) three-fourths cup of vegetables or fruit; (3) one of more portions of bread and (4) 2 teaspoons (7.76 Gm.) of

butter. The type B lunch, which brings a federal reimbursement of 6 cents per lunch, provides about two thirds as much food as the type A lunch. It may be served if a school has limited lunch room facilities but should be supplemented by food brought from home. The type C lunch, which consists of ½ pint (237 cc.) of whole milk as a beverage rates a reimbursement of 2 cents. The department of Agriculture donates some foods, such as dry milk. Schools participating in the reimbursement program are eligible to receive these foods.

The most controversial part of the National School Lunch Act is the section relating to federal payments to states. These federal funds are apportioned among the states by a formula which takes into consideration the number of schoolage children in a state and the per capita income of the state. The law requires that until 1951 federal funds accepted be matched dollar for dollar from sources within the state. From 1951 to 1955 inclusive the states shall receive funds on the condition that each dollar will be matched by one and one-half dollars. After 1955 payments shall be made on condition that each dollar will be matched by three dollars.

We cannot discontinue federal programs and federal aid in one fell swoop without causing hardships and loss of funds already invested. We must move gradually to take the federal government out of these projects. This law is written so that it will be to the advantage of even the poorest states to have the program wholly supported by the state within the next ten years.

The Act of 1946 has one grave defect: the amount to be spent on the program is left to the discretion of Congress each year through appropriations to the Department of Agriculture. The trouble now is that Congress is not willing to appropriate the funds considered necessary to expand the program. Prior to enactment of the National School Lunch Act of 1946 the greatest number of children participating in the program at any one time was 6,655,458 in the year 1945. For the fiscal year 1946-1947 Congress appropriated $75,000,000. Of this amount, $10,000,000 was earmarked for equipment. During the year the program expanded to a point where additional funds were needed and Congress appropriated an additional $6,000,000, making a total of $81,000,000. The number of children participating at the peak of that year was 7,133,927.

For the fiscal year 1947-1948 Congress appropriated only $65,000,000. The decreased appropriation and increased cost of food has handicapped operation of the program. In 1943, when the federal reimbursement for a type A lunch was set at a maximum of 9 cents, the cost of preparing the meal was 17 cents. In 1946-1947 the average cost was 22.9 cents. Increased costs and decreased appropriations have placed the states' agencies in the position of having to decide whether to reduce the number of children being assisted or to cut furthe already low rate of assistance per child.

A rise in price to the paying children is accompanied by a decrease in the number of children participating. In Chicago at the beginning of the 1947 school year it was necessary to raise the price of the type B lunch from 8 to 20 cents; participation dropped from 30,000 children daily to 10,000. The authorities immediately tried to reduce the cost per child and did get it down to 15 cents; the participation then went up to 20,000 daily. They later increased the cost to 18 cents, and the number of children being fed dropped to 18,000.

The President's budget request for the fiscal year of 1948-1949 is for only $65,000,000, which is the same amount as was appropriated for the current fiscal year. Last year the National Cooperative Milk Producers Federation was convinced that $100,000,000 was needed to expand the program and so testified before the Appropriations Committees of Congress. The federation intends to request that amount for the school lunch program for the coming year. Those who believe that this is a worth while program should write to their Congressmen and express the need for more federal funds.

Health Education

JOSEPH W. FICHTER, Master, Ohio State Grange, Columbus: The schools recognized the importance of health education many years ago by including physiology in the course of study. This was at least a beginning in health education. By 1915, many schools had introduced courses in hygiene and sanitation, and home economics classes were receiving suggestions about balanced meals. In 1918 a committee of the National Education Association named health as the first of the seven cardinal objectives of education. Much remains to be done. Cancer is a commoner disease of childhood than it is usually supposed to be. A five year study in Michigan revealed that more persons under 20 years of age died from cancer than from diphtheria, syphilis, measles, poliomyelitis, scarlet fever, typhoid, whooping cough or acute rheumatic fever. Only tuberculosis outranked cancer as a cause of death among the diseases studied. A study conducted in Denver estimated that 15 to 40 school children per thousand reveal definite signs of rheumatic heart disease.

Comparatively few schools have an effective health program. The situation is worse in the rural schools than in the city schools, as a result of lack of funds and in many cases lack of interest. The first step in providing health education for every child consists of efforts by the medical profession, schools, farm organizations and other groups to arouse interest in the possibilities of maintaining good health through eating habits, good sanitary conditions, recreation, play and other means. Second, we should work for the enactment of legislation which will provide local public health units equipped to serve every family. Also, we should urge appropriations for state departments of health and for the U.S. Public Health Service adequate to assure sufficient high type professional personnel needed in an expanding health education program. A basic part of health education is preparation of prospective teachers in teacher-training institutions and inservice training for teachers. A state supervisor of health should be a part of each state department of education. In each school there should be a teacher in charge of health, except in the smaller schools which might be served by a circuit teacher. Each child should receive a complete physical examination before entering school, and at least every two years thereafter. These examinations should be followed promptly by corrective and protective measures. There should be more emphasis on play and recreational activities which reach all pupils and less emphasis on highly competitive interschool athletic contests. Especial attention should be given to mental health.

Community Cooperation

Dr. DEAN F. SMILEY, Bureau of Health Education, American Medical Association, Chicago: We need a cooperative system of health appraisal. This is a job for physicians, parents, teachers, nurses and the entire community. Parents should give a health review to a child before he goes to school in the

morning. A child who looks as if he is going to be ill should not be sent to school. Teachers have a continuing service, a screening test. They are expected to carry on the weighing, measuring, vision and hearing tests. The work of the physician in health appraisal varies in different parts of the country. In New York state medical examinations are in the hands of the education department and required every year. In Wisconsin they have a scheme for examinations every three years. In Illinois examinations are given every four years. The American Medical Association's bulletin on periodical health examinations recommends examinations of school children at three year intervals; if reasons for additional examinations develop between examinations, they will be had.

Who should do the examining? In California the members of the medical profession prefer to do the examining and it is done in the schools. The family physicians cooperate with the school physicians in giving the examinations. Another scheme is to set up a school physician and to give him such assistance as he needs with part time physicians hired, if necessary. One variation is to bring in and establish examining teams of physicians and to let each practice his specialty and get the examinations done at one time in the autumn.

There is considerable variation in the scope of the examination. Many health examinations in the schools have been hurried inspections. A child goes by so fast that the physician does not see the boy back of the throat at all. We can go to the other extreme and insist on a pediatric examination lasting forty-five minutes to one hour. We can hardly justify that in our schools at this time.

The joint committee on health problems is recommending a health examination about fifteen to twenty minutes in length. Before the test is given the mother fills out a history chart and the teacher does certain routine screening tests; the mother is present at the examination to give assistance and information. With that sort of scheme about fifteen minutes would be adequate.

How can defects be corrected? In many cases it is a matter of convincing the parents. Topeka, Kan., has a scheme under the prepaid insurance plan. The medical society guarantees through the insurance program, a nonprofit program, that there will be complete medical care to welfare families, and the prepaid insurance program is paid $4 per month per family The procedure simply is automatic and authorities are not particular about applying a means test where the scheme is in operation That plan would have the advantage of a wide cooperative scheme of health appraisal, and the follow-up would give a program of health service that would be quite effective .

DISCUSSION

DR. MOENCH, Hillsdale, Mich.:It has been my experience that there could never be a school health program until the teachers and the parents and the health advisory agencies in the communities sit down and discuss problems.

MRS. ASHER YAGUDA, public relations chairman, Women's Auxiliary, Newark, N.J.:Last June we gave a program on health education. We impressed our director of health education so much that he asked us to help in implementing the program of health education in the schools in New Jersey. The program we were asked to implement has four points: 1. Examination. We interpret this to mean we must drop routine examinations, which must be completed in the first three months of the year, but must have individualized examinations with the parent present at the examination. 2. Examinations on admission (preschool), fourth, eighth and twelfth grades, as a minimum. 3. Each county superintendent of schools must have facilities of a psychiatrist at his command. A psychiatrist for which this plan calls will act as consultant. 4. All school teachers and personnel to be arranged for every two years. It became increasingly apparent to us that we had to do a good job on the county level at first. We organized health councils. We consider the county councils as a group which will endure as steering councils of the communities. To carry out the plan perfectly, we must set up within them the type of councils that Dr. Smiley has told about. We have been working some four months on the implementation of these councils, which have been organized in eleven of our twenty-one counties to carry through this four point program.

DR. CHARLES H. LERRIGO, Topeka, Kan.:I have been connected with the tuberculosis associations for some forty years. I want to remind you of the way to get help. To Mr. Fichter I say turn to Dr. Robert Peterson of Columbus, Ohio, and tell him that the rural schools of Ohio do not have proper health education largely because of lack of textbooks and proper teaching. I venture to say that every county in Ohio which is represented here today has a good active tuberculosis health association that will gladly finance the matter of production of authoritative books. To Mrs. Taylor I say that every tuberculosis association she can contact (there is one in every county) is interested in nutrition. They are interested to the extent of supplying professional nutritionists. State boards of health also have nutritionists.

DR. FOUTS, Omaha: I want to ask a question Mrs. Taylor mentioned the funds for school lunches. Those who could not pay were being supplied with lunches without cost. What type of means test is given to decide who can receive lunch without money?

MRS. TAYLOR, Washington, D.C.:I understand it is taken care of by the local authorities. They know the children who are not able to pay their share. It is done quietly so that the children themselves do not know who contribute. There is nothing written into the law. There is no discrimination. The lunch must be available to all children where lunches are served.

MISS MABEL RUGEN, Ann Arbor, Mich.:In Chicago they adjust the lunch to the individual students. The program is carried on at the local level. Where there is a problem of a child being able to pay, the financial assistance comes from various sources and is handled, I believe, largely through the school superintendent's office.

DR. R.W. FOUTS, Omaha:Is there any provision for part pay?

MISS MABEL RUGEN, Ann Arbor, Mich.:I think so. The individual child pays what he is able to pay. One way to put into effect some of the suggestions made here would be to needle the school administrators when you go back home. I believe that a cooperative plan that can be carried on through the local health department, representatives of medical and dental societies, farm organizations and other civic organizations can be one of the greatest influences in getting changes in the schools.

DR. MOENCH, Hillsdale, Mich.:The teachers and superintendent and nurses working with these children know whether they can afford to pay or not. Every effort is made to prevent embarrassment to the parents or the children. Many technics can be worked out so that the children can do a little

work around the school. They help to administer the free lunches to the children. We have a responsibility to have persons keep their self respect as far as receiving charity is concerned.

MRS. MARGARET DREISBACH, Washington, D.C.: Federal funds are apportioned to states. The program in the states is administered by state personnel in the department of education. The only restriction or specification that is set up by the federal government in the administration of the program is that the nutritional standard be followed for the lunches.

MR. FRANK PECK, Managing Director, the Farm Foundation, Chicago: I would like to pay my respects to the American Medical Association for its efforts to bring the rural picture before its staff and the general public. We have had plenty of statistics and talk. Now we should decide who does what and when and get action into these programs

The Rural Health Program

DR. JAMES R. MCVAY, Chairman, Council on Medical Service in Rural Areas, American Medical Association, Kansas City, Mo, Presiding: Last year I talked before this group about some of the problems of voluntary prepayment medical plans. I believe that it is by meetings such as these that we will be able to develop a solution to the problems of rural medical help. The Council on Medical Service has been particularly interested in voluntary prepayment medical care plans in their distribution to the rural population. The Council on Medical Service is most happy to coordinate its activities with the activities of this group.

Women's Auxiliary

MRS. GRACE HUTCHISON, Woman's Auxiliary, The National Grange, Xenia, Ohio: In our county each Grange has a home economics committee. We stress nutrition and sponsor nutrition contests each year. We are going to try to have our granges devote programs to health. Many who do not practice health rules are unaware of their existence. To the American Medical Association and the farm groups, we pledge our firm support.

MRS. EUSTACE A. ALLEN, *Woman's Auxiliary, American Medical Association,* Atlanta, Ga.: I represent the Woman's Auxiliary to the American Medical Association We are intensely interested in the health of this nation. One of the major problems of the auxiliary is health. We have contacts with civic groups, schools and other lay groups. They can present talks, motion pictures and debates on health. These are not altogether medical problems, but problems of good housing, sanitation, proper diet, clothing and health education, which must begin in the home. What can be done to help educate the family? Some of the projects that the auxiliary is sponsoring maintain loan funds for medical students, the stipulation being that the recipient on graduation must return to his native state and practice in a rural area for two years. Many states have this project. The membership of the Woman's Auxiliary is over 36,000 and represents seven hundred and twenty-five counties in forty-five states. Members are in an excellent position to take part in any health program inspired by these rural health conferences and to help in any way. As another project we work up public relations programs. There are a great many wives of physicians in rural areas, and they are members of all your groups. Ask them to help you promote a health program. Our facilities are at your disposal.

DR. MCVAY, Kansas City, Mo.: The American Medical Association is proud of its Woman's Auxiliary and the work it is doing. It is an important part of the work of the medical profession.

Hill-Burton Program

DR. VANE M. HOGE, Medical Director, U.S. Public Health Service, Washington, D.C.: The hospital survey and construction act gives special privilege and consideration to rural areas. The problems discussed here are national. One recent development in the administration of the hospital program regards decentralization. This is primarily a local and state program and not a federal program. For that reason the division of hospital facilities has recently decentralized its activities to eight district offices. This will make it easier to obtain information. The district directors are now authorized to answer your questions.

The program has been under way some eighteen months Today we have approved thirty-three state hospital construction plans. A great many more are practically complete, and before the end of this fiscal year we expect to have all the states of the nation included in the program. We had as of yesterday approved one hundred and twenty-four hospital projects. Thirty-three state plans which we have approved entail an annual allotment of over $62,000,000. The total for each year is $75,000,000. Most of the states are now in sight of the operation of the program. The approved projects total somewhat over $19,000,000 in federal funds which, of course, constitute one third of the total. Of immediate interest to this audience is the construction phase of this program.

Our reports, compiled weekly, reveal that a great majority of the hospital projects are in communities of less than 5,000 population in hospital service areas in which there are now no existing acceptable hospital beds. Included in the one hundred and twenty-four projects are health centers, nurses' homes and tuberculosis and mental hospitals. Seventy of the one hundred and twenty-four are general hospitals. Forty-five have somewhat under fifty beds; eighteen have from fifty to seventy-five beds; three have from seventy-five to one hundred; seven have over one hundred. The average is about fifty beds. From these figures it would appear that the rural areas are receiving a high priority, which Congress intended them to receive

The cost of the hospitals is a subject of much concern. A great many factors enter into the discussion of bed costs. There are variables. From the estimates coming in most costs are ranging between $7,000 and $13,000 per bed. The higher figures usually include extra facilities. Construction costs since 1939 have gone up from 90 to 100 per cent. The law authorized $3,000,000 for survey purposes. That money goes to state agencies and not to individual communities. We have paid out to the states about $800,000 so far. The survey does not end when the state plan is complete. It will be necessary to make modifications and amendments, and surveys are needed for individual community projects. With three exceptions all the states and territories have qualified themselves for monies. A few more have not asked for any funds because they have enough of their own. Another activity to which we have given time has been the training of state personnel.

One worry in the beginning was that this program would be new to the state health department. Our fears have been unfounded. A good type of technical personnel has been attained, and they are going through very well with their work. We have held three orientation or training classes in Washington, D. C., for personnel from the state department of health. Each course runs four months.

The act provides no funds for maintenance and operation of hospitals. It will be difficult for some areas to have an assurance of operating the

hospital after it is constructed. In many states this matter has been alleviated somewhat by state appropriations. In eight states appropriations have been authorized for assistance in construction. Each will provide one third of the cost. It has been apparent from the beginning that this present five year program would not go far along the road to meet all the needs. It is clear that the present program in its entirety will fill only 13 per cent of the entire need. Many communities are going to be disappointed. The trends that I have mentioned indicate the necessity for states to get out and raise money to build hospitals.

Pediatric Service

DR. RALPH V. PLATOU, Head, Department of Pediatrics, Tulane University School of Medicine, New Orleans: The equalization of pediatric services among children in rural and urban populations will be difficult but not impossible to attain. A successful approach must have the cooperation of all agencies interested in the welfare of children. The overlapping interests of our educational systems, health departments, social agencies and organized medical groups can at times be so complex as to make long-term planning difficult. A sound program by which the child specialist can function directly in the interests of the rural child must use all facilities possessed by all these groups, must minimize existing frictions and reduplications of effort, must be simple and forceful enough to gain everyone's active interest and must be so effective that it will attract an increasing number of young physicians to participate in the movement. Success will depend almost entirely on the amount of enthusiasm and support generated in each local community.

A small proportion of the total medical care extended to the children of our nation is furnished by child specialists. More than a fourth of our total population is made up of children, more than a third of whom live in isolated semirural and rural counties Of three thousand and five hundred pediatricians in the United States, only four are located in these areas and about three hundred in semirural counties. The most important factors determining distribution of physicians are economic considerations, hospital facilities and educational or cultural advantages for their families. There are not now, and probably never will be, enough child specialists to " go around." Even conscientious relocation would not help much at present. The ratio of child specialists to children, state for state, would obviously still remain the same; in Louisiana, for example, there would still be only one child specialist for every 14,000 children. The major burden of medical care for all segments of the population will continue to fall on the willing shoulders of general practitioners. Less than 5 per cent of all our physicians are to be found in isolated rural counties! Something drastic must be done to attract more physicians to the country: better hospitals, better schools, better highways, better subsidies and better planning for continuing programs of postgraduate medical education. The formation of Rural Health Councils can do much to coordinate the activities of all professional and lay organizations working for the betterment of rural health. Such a program of coordination can work only if current plans for adequate hospital training of prospective general practitioners are expedited and rural practice itself is made more attractive. We should require that at least a part of each young physician's training and experience be gained in rural hospitals.

What can be done now? The most sensible immediate solution to the problem is this: a well qualified child specialist will come from the medical schools directly to rural areas to act as coordinator of all available facilities for improving child health, as a consultant for practicing physicians, health officers and educators, and to interest younger physicians in problems of rural children. Such a consultant will cover a large territory and cannot often be concerned with the problems of individual children; for the most part he will teach, conduct demonstrations and establish policies. In some areas he will have to " start from scratch " to build an effective program. His main concern will be to reduce the well meant but often unnecessary duplications of effort brought about by overlapping interests of many existing agencies. This work should be implemented almost entirely by the medical schools, realizing that success will depend on the cooperation of all existing health agencies. Such a consultant ought to be able to work effectively with the physicians in each community. Through the medium of county medical societies and regional hospital staff meetings he can bring valuable practical interpretations of recent advances; he can improve the quality of some meetings by arranging programs suited to particular regional needs and by employing other authoritative speakers directly from the medical schools in those areas he is serving. He can organize in the medical schools short graduate courses specifically designed to fill the needs of physicians in rural practice. Working with local school authorities, practicing physicians and health officers, he can organize effective courses in all aspects of health education; through these same agencies he can implement better systems for periodic health examinations and routine immunization procedures. Such consultants are already working out into the rural areas of Louisiana and Southern Mississippi from our two medical schools in New Orleans. Eight other medical schools have the same plans. Similar arrangements have been made in obstetrics; closer integration of efforts in these two fields will naturally improve practices in maternal and child health in all areas.

Health Councils

DR. H.B. MULHOLLAND, Member, Committee on Rural Medical Service, American Medical Association, Charlottesville, Va.: Health Councils had their origin from a desire to coordinate the activities of widely divergent groups with one primary object, the betterment of health in this country. Health Councils are apparently active in Alabama, North Carolina, West Virginia, Vermont and Virginia. Plans are well under way for the development of health councils in the country as a whole. I have been associated with the Virginia Council on Health and Medical Care since its beginning in 1945. This Health Council consists of forty or more organizations: farm groups; home economics groups; medical groups, including the Medical Society of Virginia, whose president is automatically a member of the Executive Committee, the Negro Medical Society, Graduate Nurses Association, the two state medical colleges, the Mental Hygiene Society and the state dental society; the Conference of Social Workers, Association of County Government Officials, League of Women Voters, National Foundation for Infantile Paralysis, American National Red Cross, Cancer, Tuberculosis and Society for Crippled Children, State Chamber of Commerce, Ruritan and Rotary Clubs also have memberships. This does

not include all the member organizations. In addition, individuals may also have membership.

Its objectives are to strengthen through a united effort a full health program for the state, to serve as a clearing house on health and medical care problems and programs, and to help eliminate overlapping of effort. We have been careful not to interfere with any individual program of the member organizations. The primary purpose of the council is to serve as a forum for discussion of problems of health and medical care. The support for this council comes from voluntary contributions from member organizations and from individual members. We have an executive director. Certain programs have been supported: expansion of local health departments, so that every county might be covered by a department; augmentation of the salaries of persons working in health departments; establishment of a Bureau of Cancer Control in the state department of health; initiation of a program to care for the indigent; expansion of the tuberculosis program, and an increase in the number of rural scholarships for students who are studying medicine. All these are accomplished facts. Now that the Hill-Burton program is in full swing, the council is supporting a bill to ask the legislature for money to construct facilities where they are most needed.

The present program of the Council includes expansion of our services for treating the mentally ill, increased appropriations for cancer control and care of the indigent, establishment of scholarships for those who wish to enter hospitals for nursing training and initiation of an experimental project to explore the field of over-all prepayment insurance. The council realizes that health education is an extremely important subject, and it is supporting all the efforts in this direction. It recently had a program which had been broadcast daily throughout the state. A number of local health councils are being started throughout the state, and they will be affiliated with the statewide health council. We believe that the leadership for the initiation of these local units should come from the county medical society, but that the group within such an organization should include everyone concerned with health in its broadest aspects One cannot overemphasize the importance of local cooperative effort in the study and support of the problems of medical care. I urge that all of you go home with the idea of cooperating in the development of local health councils.

DISCUSSION

MR. LLOYD HALVORSON, National Grange, Washington, D. C.: Group practice is one way to get the specialists into rural areas. I don't want to minimize the importance of the general practitioner. Possibly he, too, should be part of a group practice team. I want to call attention to legislation in Wisconsin last year. Cooperative groups worked with the members of the medical profession to get legislation satisfactory to both, enabling consumers to organize their own health plans. I hope that physicians in all states will follow that policy, working with rural groups and establishing broad legislation which will permit consumers to form their own health policy.

MR. JERRY VOORHIS, Secretary, Cooperative Health Federation of America, Chicago: The Cooperative Health Federation of America exists to promote voluntary prepayment health plans. We believe that only as groups voluntarily come together to share on a prepayment basis the need and risks of medical care can it be made possible for rural areas to have the facilities and professional personnel they require. Our organization would be opposed to the interference of laymen with medical procedure. Our organization is dedicated to the proposition that voluntary prepayment plans will over all time be the best answer to these problems. They make certain that persons have a choice. What has happened in Wisconsin is a course of action that could be well copied elsewhere. It is the best single type of legislation that has been passed.

Outline of the Iowa Plan.—Health education forums are being carried on by the interprofessional association and the department of health. The state medical society, dental society, nurses association, pharmaceutic and veterinary medicine groups are cooperating with the state department of health and holding forums. We submit a list of fifty topics. The group of a community organization selects six to be discussed, three in the afternoon and three in the evening forum. We find that with the interprofessional groups getting out into the communities a greater interest in health councils is developing. That is the specific technic being used in Iowa.

DR. R. W. FOUTS, Omaha: In Nebraska we are soon meeting to divide the funds for hospitals. I would like to ask Dr. Hoge whether, in the event that a state is not able to utilize all the funds allocated by the federal government, the unused portion will carry over to the next year or will go back into the general fund.

DR. V. M. HOGE, Washington, D. C.: The allotment is made for a year to a state with an approved plan. You will have an allotment for this fiscal year and it will be good through the following fiscal year. There are two years in which to allocate one year's allotment.

DR. R. W. FOUTS, Omaha: If by the first of June we have not been able to allot the full amount extended to Nebraska for this year, we can go into next year and we would still have the same amount for this year as for next year ?

DR. V. M. HOGE, Washington, D. C.: Your plan was approved and allocated this year. If no grants were made this year, next year you would have double the amount.

DR. ROBERT L. MACCOHNACK, Whitehall, Wis.: I have charge of a small hospital in a rural group. About two years ago I made a survey of accidents in our community and found we had three hundred and thirty-three accidents in our small town. Five were fatal. In this group of accidents we were surprised to find that a great percentage occurred in children. When we consider rural health we should give thought to the accident prevention campaign.

DR. A. W. BROWNING, Elloree, S. C.: The good roads and automobiles create a tendency for persons to go to cities to see physicians and use the local physicians for night calls only. We must impress on the young men that if they will go to rural sections they will find that they can lead good, abundant lives.

SUMMARY

RANSOM E. ALDRICH, Chairman, Medical Care Committee, American Farm Bureau Federation, Jackson, Miss.: I want to say to the lady from the Woman's Auxiliary that there are a million farm women in

farm women's organizations. There is an opportunity to expand your services. We will be happy to cooperate.

I would like to see the budgets raised for maintenance. If we want hospitals, we can provide maintenance without federal aid. I come from a county that has an assessment of less than $3,000,000. We floated a bond issue and sold bonds at a premium. We provide a clinic and cooperative agreement with the area hospital and maintenance funds at the same time. I want to say to Dr. Mulholland that I am heartily in accord with his idea of a council. I hope that we can keep it as a forum, to promote an active program in areas where we can reach an agreement.

DR. CLIFFORD G. GRULEE, Secretary, American Academy of Pediatrics, Evanston, Ill.: Why are we saying so much about poor rural health? We have suddenly been startled by the fact that it is healthier to live in a city than in the country. That is contrary to all established ideas. The city doesn't deserve any credit. When things get so bad they can't get worse, we do something about it. If the people in the country are not aroused to the needs of the children in that community, we won't get very far. All rural health has not been so bad. Oregon is a rural state, but until the past few years it had the lowest infant death rates in the country. This rural health problem is a local problem. It is one the local community will have to solve. What about the Mexicans? There are much higher death rates in states where the Mexicans live than in any other states in the union. We must have funds from a central group to take care of them.

LUNCHEON MEETING

DR. F. S. CROCKETT, Lafayette, Ind., Presiding

DR. A. C. SUDAN, Denver: I don't have to tell you how deeply I am honored by the American Medical Association's first annual award to a general practitioner. This award is actually a recognition of the splendid efforts of all general practitioners. It reminds people that life in the best nation of the world gets the best medical care from a family physician and not from socialized medicine. Problems of rural health have occupied almost all of my professional life. We know that the health of America can be improved, but the only proper approach to the problems of rural health is by free people working together in a community spirit without any compulsion from the government. In the Rocky Mountain region community interest in better rural health is increasing. Many small towns are going ahead with new hospitals in spite of scarcity of building materials, building them as community projects instead of waiting for a handout from Uncle Sam. We know that whoever pays the fiddler has the right to call the tune. If a dollar is sent first into Washington it is trimmed and trimmed and comes back to the community as a smaller piece of change. We must work more closely with the school boards, the teachers, the parent-teachers organizations, and the health councils to bring about the day when every school child will receive sound basic training in personal and health happiness.

DR. EDWARD L. BORTZ, President, American Medical Association, Philadelphia: This conference is significant because of the fact that so many farm organizations represented here are participating with the American Academy of Pediatrics and the American Medical Association in an all-out search for methods to improve the health of our citizens who are in charge of the nation's agriculture. One cannot stress too strongly the fact that a healthy citizenry is essential to our country's prosperity and future security. Organized medicine is aware of the importance of child health. One of the major items of its national health program is: "Every child should have proper attention, including scientific nutrition, immunization and other services included in infant welfare." The various councils of the American Medical Association are focusing their activities on numerous aspects of child health and welfare. One of the strongest committees of our Association is that on Rural Medical Service. Data of importance have been collected, and with these facts to guide our Association, plans for improving health in the farm districts are under way. Where the approach from the national level is expedient our Association has gone into action; local problems oft-times can best be worked out at the community level.

The creation of health centers and diagnostic clinics and the improvement of hospital facilities are on the way. Frequent conferences between community health leaders and those who mold public opinion, in association with medical authorities, are being held. Health classes in the schools and the encouragement of health talks on the radio and through other channels of communication represent another activity of the American Medical Association.

A sound health program should begin in childhood and continue throughout the life of all persons. In developing a wholesome program for our citizens of tomorrow the American physician has never been more competent. With his excellent medical education and understanding of health problems he is well equipped to assume leadership. When organizations like those representing our farm groups unite with organized medicine in a unified program for improving the health services of rural districts, there is much hope for a more vigorous nation. Let me assure you that the American Medical Association is working diligently in the interests of a healthier people.

Losers, Finders, Keepers

DR. EDWARD E. ELLIOTT, President Emeritus of Purdue University, Washington, D.C.: Nearly fifty years ago I found myself a starving chemist so I went to teaching. I was superintendent of schools. I know that education, as we understand that term, is fruitless unless we are dealing with healthy human beings. For the past two years I have been studying the profession called pharmacy. I have been studying the character and personalities of the 100,000 legally licensed pharmacists. In 1947 the physicians of this country delivered to these pharmacists 350,000,000 prescriptions. In the official catalogues there are today in excess of 25,000 different forms of medicinal preparations on the market. I have been interested in discovering one significant fact. The annual sale of pill or packaged medicine without prescriptions reaches the tremendous sum of $500,000,000 a year. We call this self medication. We still believe in magic. Physicians come in contact with it every day. A man of misspent life appears before you. He wants a pill that will produce instantaneous recovery. I am reading from a clipping from the American Museum of Natural History. Ten million Americans buy rabbits' feet each year. The human mind does not develop as rapidly as the things it seeks to control. As I look on the medical problem I do not see as clearly as some of you apparently do the distinction between rural medical service and medical service in the city. I agree with George Bernard Shaw who said this is a foolish thing that a sound body is the production of a sound mind. The goal of such cru-

sades as that represented by this conference cannot avoid becoming concentrated on men's minds as a necessary prerequisite for the salvation of their bodies. As I sat through this morning's meeting I kept asking myself, are they reaching a decision that we can afford these things if we will? The question is not one that belongs even under the valiant leadership of the American Medical Association. It belongs to the whole of our leadership to create a sense of individual responsibility, the individual responsibility of the parent for the child, the individual responsibility of a community for its own welfare, and above all the individual responsibility of each person for his own welfare. The great need is not more physicians but fewer patients. The price that we are going to pay is not in terms of skilful medical service altogether, nor is it in terms of money; the price we are going to pay is the effort required to recapture our own sense of self responsibility.

Washington Letter

(From a Special Correspondent)

June 2, 1948.

Membership in World Health Organization Indicated

Legislation authorizing membership of the nation in the World Health Organization was voted 6 to 3 by the House Rules Committee, where it had been held up for eleven months. Indications were that the measure would be given early approval by Congress. The bill was revised to limit to $1,920,000 a year the contribution of the federal government to the world agency. The bill was passed by the Senate almost a year ago and the House Foreign Affairs Committee cleared it through but the Rules Committee tabled it. The new organization meets in Geneva in June, and the State Department advocated passage so that this country can participate. House Speaker Joseph W. Martin Jr. endorsed the bill, along with the House Steering Committee, but delay was encountered again in the Rules Committee which requires a unanimous vote to remove a bill from tabling. Representative Walter H. Judd, Republican of Minnesota, dissolved the impasse by submitting a slightly revised bill. A new provision requires the President to appoint, for Senate confirmation, a practicing physician or surgeon with at least ten years' experience to represent this country on the executive board of the World Health Organization. The bill also states that there must be nothing in the constitution of the world health group which would commit the United States to enact any specific legislation.

Medal of Merit Awarded to Scientists

Defense Secretary Forrestal announced that the Medal of Merit had been awarded to sixty-five scientists and engineers of the wartime Office of Scientific Research and Development. The President's Certificate of Merit was awarded to three hundred and eighty-seven other persons, and the War and Navy Department Certificate of Appreciation to seven hundred and eighty-two others. At a ceremony in the Pentagon Building, Dr. Vannever Bush, director of the office during the war and presently chairman of the Research and Development Board and president of the Carnegie Institution in Washington, presented the Merit Medals to the following: Drs. Leason Heberling Adams, John Swalm Burlew and Richard Brooke Roberts, all of Carnegie Institution; Edward F. Knipling, Bureau of Entomology, Agriculture Department; Roger Sherman Warner Jr. and Carroll Louis Wilson of the United States Atomic Energy Commission and Alan Tower Waterman, Office of Naval Research.

Registry of All Known Cancer Cases

Health officials of the District of Columbia announce that a register will be kept of all known cases of cancer, similar to the record now kept of every known case of tuberculosis. Officials are studying the system of cancer control now in use in Hartford, Conn. Insurance figures reveal an improved general health condition in the national capital.

Plans for Army Hospital at Forest Glen Postponed

Possible unification of hospital facilities of the Army and Navy has resulted in plans being dropped for the proposed thousand bed Army general hospital at Forest Glen, Md., according to Representative Bates, Republican of Massachusetts. Abandonment of the Forest Glen plans was recommended by the Army Surgeon General. The House passed by voice vote a bill totaling $194,631,440 for installations at Army and Air Force posts around the world.

Medical Legislation

STATE LEGISLATION

Mississippi

Bills Enacted.—H. 292 was approved April 13, 1948. It authorizes the incorporation of organizations for medical and surgical purposes or for establishing, maintaining and operating clinical, pathologic, medical or surgical research laboratories or the like. Such corporations shall not be required to make publication of their charter, shall issue no shares of stock, shall divide no dividends or profits among their members, shall make expulsion the only remedy for nonpayment of dues, shall vest in each member the right to one vote in the election of all officers, shall make the loss of membership, by death or otherwise, the termination of all interest of such members in the corporate assets, and there shall be no individual liabilities against the members for corporate debts, but the entire corporate property shall be liable for the claims of creditors. H. 290 was approved April 13. It authorizes the establishment of a scholarship program for the advanced study of nursing which consists of forty scholarships of the value of not more than $3,000 each. Students accepting assistance from these scholarships must agree to spend a period of time working as nurses in Mississippi equal to the number of years during which they accepted the benefits of the scholarships. H. 291 was approved April 14. It authorizes the establishment of a school of nursing at the University of Mississippi and inaugurates a scholarship program in connection therewith. H. 310 was approved April 14, 1948. It makes an appropriation of $130,000 for the purpose of defraying the expense of educating and treating children afflicted with cerebral palsy, such sum to be expended under the supervision of the state board of education by the Mississippi crippled children's service. H. 312 was approved April 13. It amends the Mississippi code relating to the regulating of registered nurses by clarifying the powers and duties of the board of nurses' examiners. H. 532 was approved April 13, 1948. It amends the law relating to the Mississippi Commission on Hospital Care by, among other things, authorizing it to lay out a plan for building and equipping schools of nursing to be located in strategic points in the state for the promotion of the advancement of nursing education. H. 533 was approved April 12. It amends the hospital construction act by providing authorization for operating and equipping health centers or health departments in the various municipalities of the state. H. 687 was approved April 13. It enacts a hospital licensing law and, in conjunction therewith, provides for the appointment of an advisory hospital council to consult and advise with the licensing agency and to assist in the development of rules, regulations and standards to be required of hospitals seeking licensure. No such rules, regulations or standards shall be adopted or enforced which would have the effect of denying a license to a hospital or other institution required to be licensed hereunder, solely by reason of the school or system of practice employed or permitted to be employed therein. S. 446 was approved April 13, 1948. It requires all persons licensed to practice pharmacy to renew their licenses annually.

GOVERNMENT SERVICES

NAVY

NEW REGULAR OFFICERS

Lieut. Comdr. William M. Crafft and Lieut. John H. Stover, both of the Naval Reserve, have returned to active duty to accept appointments in the Regular Navy Medical Corps.

The following members of the graduating class of the medical school indicated have accepted appointments as lieutenants (jg) in the Regular Navy Medical Corps: Merrill A. Bender of Ohio (Harvard); John H. Bowen of California (College of Medical Evangelists); Charles R. Campbell of California (Tulane University School of Medicine); Harold J. Crecraft of Pennsylvania (University of Maryland School of Medicine); Joseph H. Early Jr. of Virginia (George Washington University School of Medicine); William T. Gyles of Oklahoma (University of Oklahoma School of Medicine); Jerome L. Heard of Louisiana (Tulane University School of Medicine); John B. Jacob of Oklahoma (University of Oklahoma School of Medicine); Cunningham R. MacCordy of Louisiana (Tulane University School of Medicine); Norman P. Morin of Maine (McGill University School of Medicine), and Forrest W. Olson of South Dakota (University of Oklahoma School of Medicine).

NAVAL CAREER IN RESEARCH

The Bureau of Medicine and Surgery has added the field of research to the list of specialties for which medical officers may qualify and thus be assured of spending a major part of their Naval career in research. While the qualifications required for this specialty are not inflexible, it is desirable to have a Ph.D. degree in a basic science. However, the application of any officer of the Naval Medical Department having an interest in research as a career will be considered, and if such training is indicated he will be started on a tour of duty at one of the Naval Medical Research Institutions, followed later by a short tour of sea duty to provide an over-all picture of the Navy's needs. Training in civilian research laboratories will be offered also. Applications are desired from physicians and other scientists now in the Naval Reserve and also from qualified civilians interested in a career of naval medical research.

VETERANS ADMINISTRATION

VOLUNTARY SERVICE NATIONAL ADVISORY COMMITTEE

Representatives of thirty-five national organizations, comprising the Veterans Administration Voluntary Service National Advisory Committee, met at the central office in Washington, D. C., May 27. Under the voluntary service plan, each organization assists in the program under its own identity and cooperates with other member groups of the local committee in a general program for hospitalized veterans. The program has developed in all veterans' hospitals to the point where a voluntary service committee is coordinating the work of all voluntary groups. The meeting was addressed by Carl R. Gray Jr., Administrator of Veterans Affairs; Dr. Paul B. Magnuson, Chief Medical Director, and Mr. F. R. Kerr, Assistant Administrator for Special Services and chairman of the national committee.

TELETYPE NETWORKS IN VETERANS' HOSPITALS

To speed up service, the Veterans Administration announces that teletype networks permitting almost instantaneous communication between branch offices and hospitals have been installed. A regional office attempting to locate a hospital bed for a veteran requiring immediate hospitalization can teletype simultaneously to all hospitals within the area; thus the veteran can be assigned to the nearest hospital having a vacant bed. The new system using leased teletype lines at flat rental rates replaces commercial telegraph and long distance telephone services whenever possible. The leased line systems result in saving to the government by reducing the number of long distance calls and telegrams. Before this system was installed the average telecommunication cost in branch office 2, encompassing the state of New York, averaged $5,000 a month and now averages $3,000 a month, although the volume of messages has increased from 2,500 to 7,000.

CONFERENCE ON REVISION OF LISTS OF DISEASES

Eugene L. Hamilton, chief, medical statistics division, Office of the Surgeon General, recently returned from Paris, France, where he was a member of the United States Delegation to the Conference for the Sixth Decennial Revision of the International Lists of Diseases and Causes of Death. The conference, which was convoked by the government of France, included representatives from some twenty-eight countries. The United States delegation included Dr. Halbert L. Dunn, of the National Office of Vital Statistics, chairman; Dr. George Baehr, president of the New York Academy of Medicine; Dr. Joseph Berkson, chief statistician, Mayo Clinic; Dr. E. F. Daily, director, division of health services, Children's Bureau; Dr. P. M. Densen, chief, division of medical research statistics, Veterans Administration; Dr. H. F. Dorn, chairman, statistical section, National Cancer Institute; Dr. W. Thurber Fales, director, statistical section, Baltimore City Health Department; Mr. E. L. Hamilton, chief, medical statistics division, Office of the Surgeon General, U. S. Army; Dr. I. M. Moriyama, chief, mortality analysis section, National Office of Vital Statistics; Dr. Edward S. Rogers, dean, School of Public Health, University of California, and Capt. Robert L. Ware, chief, division of medical statistics, Bureau of Medicine and Surgery, U. S. Navy. It is expected that responsibility for the periodic revisions of these international lists will now be assumed by the World Health Organization.

CONTRACTS FOR HOSPITALS

A contract has been awarded for the construction of a two hundred bed Veterans Administration hospital at Saginaw, Mich., costing $4,000,000. Construction is expected to begin within the next thirty days.

RETIRED HOSPITAL MANAGER HONORED

Dr. Hans Hansen was guest of honor at a testimonial dinner at Geneva, N. Y., on the occasion of his retiring from the Veterans Administration after twenty-eight years of service, the last thirteen of which were as manager of the veterans' hospital at Canandaigua. About two hundred and fifty members of the staff and other friends attended. The honored guest was presented with a set of luggage as a token of esteem from his associates. Dr. Hansen is a graduate of Creighton University School of Medicine, Omaha, and is a veteran of World War I. During his period at the hospital the bed capacity has been increased from about 700 to nearly 2,000. Dr. Nils B. Horsloff, who will succeed Dr. Hansen as manager, is a graduate of Columbia University Medical School, New York; interned at St. Elizabeths Hospital, Washington, D. C.; studied at the Wagner Juaregg Clinic in Vienna, Austria; engaged in private practice, was instructor in psychiatry at Columbia, attending psychiatrist at the New York Psychiatric Institute and chief of the psychiatric clinic at Lenox Hill Hospital for several years. During the recent war he served in the medical corps in North Africa, Sicily, Italy and the Persian Gulf commands.

PUBLIC HEALTH SERVICE

DEADLINES FOR APPLICATIONS FOR RESEARCH GRANTS

The National Institute of Health, Bethesda, Md., has set the following deadlines for the receipt of applications for U. S. Public Health Service grants in support of medical research: June 15 for applications to be reviewed at the September meeting of the National Advisory Cancer Council; July 15 for applications to be reviewed at the October meeting of the National Advisory Mental Health Council and August 1 for applications to be reviewed at the October meeting of the National Advisory Health Council.

DR. WISHIK APPOINTED TO CHILDREN'S BUREAU

Dr. Samuel M. Wishik, head of the division of physically handicapped children of the New York City Health Department, has been appointed to the U. S. Children's Bureau to direct the planning work for the program of grants in aid to the states for maternal and child health and for crippled children's services. He will be particularly concerned with developing standards for and improvements in these health services, thus helping the field staff and the state health departments. The Children's Bureau is authorized by the Social Security Act to grant $18,500,000 a year to the states for these programs.

Dr. Wishik was formerly director of the Hawaii Health Department services for maternal and child health, and for crippled children. During the war he was commissioned in the U. S. Public Health Service. He is certified by the American Board of Pediatrics. In his new position Dr. Wishik succeeds Dr. Abram L. Van Horn, who resigned to direct the Kate Macy Ladd Fund in Newark, N. J., which was established to provide medical care for convalescents.

AWARDS AND COMMENDATIONS

Dr. Robert L. Cherry

The United States of America Typhus Commission Medal was recently awarded to Dr. Robert L. Cherry, surgeon (R), U. S. Public Health Service, now deputy administrator of the Red Cross in Alexandria, Va. The citation read as follows: He rendered exceptionally meritorious service in the control of the epidemic of typhus fever at Naples, Italy, during the period Dec. 20, 1943 to Feb. 20, 1944. As chief of a section for case finding and epidemiologic investigation, he carried heavy responsibility. Dr. Cherry's excellent work contributed materially to the successful checking of this epidemic, thus protecting both civilians and American troops. The decoration was awarded in a ceremony last June in Bogota, Colombia, while Dr. Cherry was with the office of the Institute of Inter-American Affairs.

DR. DEARING APPOINTED DEPUTY SURGEON GENERAL

The U.S. Public Health Service has announced the appointment, effective May 17, of Dr. W. Palmer Dearing as Deputy Surgeon General to succeed Dr. James A. Crabtree. Before entering the Public Health Service in 1934 Dr. Dearing taught epidemiology at Harvard University School of Public Health and preventive medicine at Harvard Medical School, where he graduated with honor in 1931. During the recent war he was assistant chief medical officer and later chief medical officer of the Office of Civilian Defense; afterward he did personnel work in the health division of UNRRA, serving in North Africa and Europe. Recently he has been chief of the division of commissioned officers in the public health service. Dr. Crabtree on leaving his previous position will serve on detail as head of the medical unit of the National Security Resources Board, working on mobilization planning in the medical field.

AID CANCER TEACHING PROGRAMS

The U. S. Public Health Service announced the award of grants totaling $435,706 for cancer teaching programs in medical and dental schools as part of a $2,000,000 program to improve the teaching of cancer. These grants bring the total already made to $1,389,573 distributed to sixty medical schools and seventeen dental schools, the individual sums ranging from $5,000 to $25,000.

PERSONALS

Dr. Paul A. Lindquist, senior surgeon (R), has been assigned to the State Department for duty with the American Mission for Aid to Greece. He will conduct special training on trachoma, leprosy and venereal disease control and will serve also as liaison officer with the Greek War Relief and Near East Foundation.

Dr. Leslie W. Knott, surgeon, has been appointed deputy director of the public health division of the mission for aid to Greece, to succeed Vernon G. MacKenzie, who has returned to the United States to take charge of the Stream Pollution Laboratory at Cincinnati.

HOSPITAL NEWS

President Truman and the Federal Board of Hospitalization have approved the acquiring of a 15 acre site in Boston, within a mile and a half of Harvard Medical School, for a thousand bed veterans' hospital. Previous sites authorized for this hospital were abandoned because the Veterans Administration could not obtain title.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

NAME	CITY & STATE
Albee, F.H. Jr.	Colonia, N.J.
Alpern, C.	Chicago, Ill.
Armitage, J.E.	Santa Barbara, Calif.
Ashley, G.D.	Winston-Salem. N.C.
Aulie, H.G.	Detroit, Mich.
Ausband, J.R.	Winston-Salem, N.C.
Barton, D.W.	Troy, N.Y.
Beidleman, B.	Hanover, Pa.
Bell, R.P. Jr.	Lakewood, Ohio.
Berge, H.L.	Minneapolis, Minn.
Bland, C.L.	Sonora, Ky.
Brown, E.O'D.	Chicago Heights, Ill.
Bruce, C.O. Jr.	Eminence, Ky.
Burke, W.H.	New York, N.Y.
Burke, J.W.	Lima, Ohio
Burnett, W.E.	Arlington, Va.
Caldwell, D.M.	East Orange, N.J.
Cannon, J.A.	Glendale, Calif.
Carpenter, G.T.	Goshen, Ind.
Carroll, J.T.	Fulton, N.Y.
Chatham, B.C.	Greenville, Ky.
Cheek, J.H.	Hobbs, N.M.
Chute, W.D.	Omaha, Nebr.
Clear, J.J.	Cincinnati, Ohio
Clements, C.G.	Murrysville, Pa.
Colon-Rivera, W.D.	Santurce, P.R.
Colver, H.D.	Portland, Oreg.
Cotton, W.T.	Omaha, Nebr.
Deems, M.B.	Huntington, Ind.
Degeneres, L.H.	Shreveport, La.
Dixon, R.W.	Mooreland, Okla.
Doolittle, S.B.	Bradford, Pa.
Dorfman, A.	Chicago, Ill.
Dorkin, J.H.	Camden, N.J.
Doss, W.G.	Nashville, Tenn.
Drake, M.E.	Berwyn, Md.
Drewery, H.E.	Kenmore, N.Y.
Drexler, O.	New York, N.Y.
Eastment, W.H.	Philipsburg, Pa.
Eby, L.G.	Sheboygan, Wis.
Eichenlaub, J.E.	Chevy Chase, Md.
Eskind, H.G.	Providence, Ky.
Evert, R.N.	St.Paul, Minn.
Farquhar, J.D.	California, Pa.
Feaster, J.H.Jr.	Piedmont, W. Va.
Felder, R.E.	Fulton, Ind.
Felger, H.P.	New York, N.Y.
Fishburn, G.W.	San Diego, Calif.
Florence, T.J.	Douglasville, Ga.
Foster, W.L.	Asheville, N.C.
Friedman, E.W.	New York, N.Y.
Friskel, A.K.	Frontenac, Kansas
Gallagher, P.	El Paso, Texas
Garau, S.	Guayama, P.R.
Garvin, J.P.	Cincinnati, Ohio
Getscher, P.E.	Omaha, Nebr.
Giannotto, A.S.	Newark, N.J.
Gilbert, C.R.A.	Charlottesville, Va.
Giovacchini, J.A.	Sanger, Calif.
Glaser, G.H.	New York, N.Y.
Gleichert, J.E.	Altoona, Pa.
Gomez, H.E.	Rio Piedras, P.R.
Graham, R.A.	McAllen, Tex.
Gremillion, D.F.	Bristol, Conn.
Griffin, W.R. Jr.	Asheville, N.C.
Griffiths, S.J.	Muskegon Hts, Mich.
Hall, W.A.	Pittsburgh, Pa.
Halpern, S.L.	Brooklyn, N.Y.
Hamilton, H.N.	Winder, Ga.
Hammel, H.T.	Monon, Ind.
Harris, R.	Albany, N.Y.
Hazelrigg, T.R. Jr.	East Cleveland, Ohio
Held, A.T.	Columbus, Ohio
Hieb, W.E.	Marion, S.D.
Hirleman, H.R.	Storm Lake, Iowa
Holt, W.E.	Philadelphia, Pa.
Hoover, G.W.Jr.	Washington, D.C.
Houck, C.D.	Lewisburg, W. Va.
Houle, L.B.	Cambridge, Mass.
Hutchinson, J.B.	Denver, Colo.
Jackson, T.W.	Piedmont, W.Va.
Jacobs, M.H.	Bronx, N.Y.
James, B.R.	Fresno, Calif.
James, G.T.	Northport, Ala.
Jankovsky, K.A.	Sedgwick, Colo.
Jenk, L.F.	Fort Dodge, Iowa
Johnson, A.C.	Richmond, Va.
Kahn, R.E.	New York, N.Y.
Kain, P.E.H.	Haddonfield, N.J.
King, B.F.	Aberdeen, S.D.
Kingsbury, K.R.	Marshalltown, Iowa
Kinnaird, R.Jr.	Danville, Ky.
Kirby, L.B.	Harrison, Ark.
Kobilak, R.E.	Flushing, N.Y.
Kramish, D.	Denver, Colo.
Krueger, J.E.	Gary, Ind.
Kundert, K.F.	Norwalk, Wis.
Lehmann, W.K.	Dennison, Ohio
Levitt, M.F.	New York, N.Y.
Littleton, L.R.Jr.	Arlington, Va.
Lloyd, R.P.	Fort Wayne, Ind.
Lockhard, W.S. Jr.	Durham, N.C.
Loftus, T.M.	Hudson, Pa.
Loperfido, F.J.	Bronx, N.Y.
Luger, N.M.	Brooklyn, N.Y.
MacRae, M.M.	Moultrie, Ga.
McHugh, J.J.	Philadelphia, Pa.
McIntyre, C.	Cincinnati, Ohio
Major, W.K.	Kenmore, N.Y.
Maxwell, P.J.Sr.	Lincoln, Neb.
Meadows, J.W.	Spokane, Wash.
Merrill, J.P.	Boston, Mass.
Miller, W.C.	Abbeville, La.
Moon, J.W.	Baraboo, Wis.
Moore, J.C.	Philadelphia, Pa.
Murphy, E.G.	Douglaston, L.I., N.Y.
Murphy, W.E.	Lakeview, Oregon
Namey, J.T.	Farrell, Pa.
Nichols, R.K.	York, Ala.
Oler, W.M. 3d	Rye, N.Y.
Orsini, S.A.	New York, N.Y.
Paret, F.L.	North Bergen, N.J.
Parker, E.A. 3d	Upper Darby, Pa.
Parlova, C.C.	Astoria, Oreg.
Parmer, L.G.	New York, N.Y.
Parrish, R.G.	Comanche, Okla.
Parvin, R.W.	Merchantville, N.J.
Perkins, W.H.	New Egypt, N.J.
Peterson, L.F.	Plymouth, Ind.
Petryshyn, W.A.	Brooklyn, N.Y.
Pileggi, J.J.	Ossining, N.Y.
Playfair, J.H.	Irwin, Pa.
Pollingue, O.L. Jr.	Port Barre. La.
Pool, C.C.	Charleston, W.Va.
Rall, J.E.	Naperville, Ill.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Stanley Osborn Day.—In recognition of more than twenty-five years of faithful public service, the Connecticut Public Health Association celebrated Stanley H. Osborn Day May 12. The scientific program held at Yale University School of Medicine emphasized trends in public health practices. Panel discussions were held on the health of the school child, infant diarrhea in hospitals and the future of the voluntary nursing agency health councils. In round table discussions the general hospital as a community health agency and chronic diseases were discussed. Speakers at the reception and banquet were: Charles E.A. Winslow, New Haven, Conn., Reginald M. Atwater, New York, Erval R. Coffey, New York, and Stanley H. Osborn, Hartford.

Dr. Osborn, a graduate of Tufts College Medical School, Boston, 1914, became a district health officer in the Massachusetts State Department of Public Health in 1916. He came to Connecticut in 1920 as deputy commissioner of health and has been state commissioner of health since 1922. He has also been a lecturer in public health at Yale since 1924.

FLORIDA

Rabid Foxes.—A fight against rabid foxes has been started by the state board of health, Florida Fresh Water and Fish Commission and the State Livestock Sanitary Board. S.M. Canup of the U.S. Fish and Wildlife Service is in Florida to supervise the work. The situation has become so acute that rabid foxes on several occasions have come into towns and attacked dogs, cattle and in some instances human beings.

ILLINOIS

Terminate Emergency Maternity and Infant Care Program.--Federal funds will not be available for maternity care received after May 31 under the emergency maternity and infant care program for wives and babies of enlisted servicemen, the state department of public health has announced. This is an additional step in the termination of the war emergency program established by Congress to provide maternity and infant care for the wives and babies of enlisted men. The program was placed on a liquidation basis by Congress as of June 30 last year. Since November 1942, when the program started in Illinois, about 62,000 wives have received maternity care. Also, medical and hospital care has been provided for about 13,000 infants. This program has been administered by the division of maternal and child health of the state department of public health.

Chicago

Hospital News.--Mount Sinai Hospital opened its new two story sixty bed addition late in May. Twenty per cent of the beds in the new wing have been allocated for service to patients unable to pay.

Fraternity Lecture.—Dr. R. Scott Stevenson, London, England, will deliver the William W. Root Lecture at the annual dinner of the Alpha Omega Alpha at the Palmer House, Chicago, June 24, on "The Birth of Laryngology."

Alvarez to Give Irish Lecture.—The second annual Henry E. Irish Memorial Lecture was delivered by Dr. Walter C. Alvarez, Rochester, Minn., on June 9 at 1 p.m. in room 221, University of Illinois College of Medicine, on "The Vanishing Art of Diagnosing with One's Eyes and Ears." The lecture is sponsored by Eta Chapter of Alpha Kappa Kappa in honor of the late Dr. Henry E. Irish, a former member of the faculty of the University of Illinois.

Lectures for Prospective Fathers.—Chicago Lying-In Hospital and Dispensary of the University of Chicago is presenting three evening classes, June 1, 8 and 15, for expectant fathers in the Chicago area in the Dora DeLee Hall at the hospital. The first lecture, devoted to psychology of pregnancy and labor, was presented by Dr. William J. Dieckmann, chief of staff. Miss Catherine Sheckler, assistant professor of nursing education, delivered the June 8 dual lecture on family life and the new baby. A pediatrician from the Bobs Roberts Memorial Hospital for Children and Miss Maxine Green, dietitian at Chicago Lying-In Hospital, will conclude the lectures with the topics, Baby's First Year and Making the Formula. Classes are free of charge. Prospective fathers are invited to register by writing the nursing department of Chicago Lying-In Hospital, 5841 Maryland Avenue, Chicago 37.

IOWA

Appointments and Promotions.—Dr. Adolph L. Sahs has been appointed head of the department of neurology at the University of Iowa College of Medicine, Iowa City, where he has been professor and acting head since the retirement of Dr. Clarence Van Epps in 1946. A native Iowan, Dr. Sahs received his M.D. degree at the college of medicine in 1931 and joined the staff of the neurology department in 1933 as an instructor, becoming a full professor of neurology in 1946. He held a Rockefeller Foundation Fellowship in neurology in 1938-1939. Others appointed are: Dr. Frederick H. Hesser, assistant neurologist and instructor in neurology at Duke University School of Medicine, Durham, N.C., as assistant professor of neurology; Dr. Raymond R. Rembolt, Lincoln, Neb., as director of the State Services for Crippled Children and medical director of the School for Severely Handicapped Children; Dr. Wendell P. Stampfli, Denver, as assistant professor of radiology; Dr. Otis S. Lee Jr., research fellow, as assistant professor of ophthalmology. These appointments are effective July 1.

LOUISIANA

Society News.--The newly organized New Orleans Academy of Internal Medicine has elected Dr. Thomas P. Findley Jr. president and Dr. Samuel B. Nadler secretary-treasurer.

Personal.--At a recent meeting of the Louisiana State University Medical Alumni Association in Monroe, Dr. Thomas A. Richardson, Minden, was elected president, and Dr. Donald B. Williams, Lafayette, secretary-treasurer.

MASSACHUSETTS

Personal.—Brig. Gen. James Stevens Simmons, Army, retired, dean of the Harvard School of Public Health, on April 16 was elected president of the Association of Schools of Public Health at the annual meeting of the association held at the Connaught Laboratories, University of Toronto, Canada. On April 19 he delivered the James D. Bruce memorial lecture in preventive medicine at the annual convocation of the American College of Physicians in San Francisco, where he also was awarded the James D. Bruce Memorial Medal for Achievement in Preventive Medicine.

MICHIGAN

Hospital Survey.—The Michigan Office of Hospital Survey and Construction reports that the state plan for hospital facilities was approved by the Michigan Advisory Hospital Council at its April 8 meeting. When approved by the Surgeon General, U.S.Public Health Service, the plan makes Michigan eligible for $2,171,000 a year for five years to assist local communities in developing hospital facilities. Michigan, which now has 14,040 suitable beds in general hospitals, needs 27,776 beds according to U.S.Public Health Service standards.

MINNESOTA

Carman Lecture.—The annual Carman Lecture of the Minnesota Radiological Society was given by Dr. Paul C. Hodges, professor of radiology, University of Chicago School of Medicine, June 7, on "The Role of X-Ray Pelvimetry in Obstetrics." Dr. Hodges also spoke at the society banquet at the Minneapolis Club at 6:30 p.m. on "Notes on Three Current Developments in Diagnostic Radiology."

MISSOURI

State Medical Elections.--At the annual meeting of the Missouri State Medical Association March 14-17, Dr. Robert Mueller, St. Louis, was installed as president and Dr. W. Wallis Smith, Springfield, president-elect. Dr. Perry W. Jennings, Canton, was elected secretary and Dr. William A. Bloom, Fayette, treasurer.

New Preventive Medicine Professor.—Dr. Robert E. Shank, New York, has been appointed professor of preventive medicine and head of the department of preventive medicine and public health at the Washington University School of Medicine, St. Louis, effective July 1. Dr. Shank is a graduate of the school of medicine, 1939, and is at present with the William H. Park Laboratories in New York.

MONTANA

Annual State Medical Meeting.—The Montana State Medical Association will hold its annual session at the Northern Hotel, Billings, June 16-19, under the presidency of Dr. Louis W. Allard. Out of state speakers, all from Denver, will be: Bernard B. Longwell, Ph.D., endocrine interrelationships, and Drs. E. Stewart Taylor, treatment of gynecologic cancer; Clarke H. Barnacle, psychiatric implications of the climacteric and senescence; Henry Swan, age of choice for surgery in children, and Robert W. Gordon, treatment of nephritis, Two panel luncheons have been arranged for Thursday, one on Developments in Thoracic Surgery and one on Advances in Endocrinology. Friday's panel discussions at luncheon will take up Advances in Psychiatry and Obstetric Anesthesia. A buffet supper and dancing will be held Thursday. At the banquet Friday, eighteen physicians who have been practicing fifty years or more will be honored as charter members of Montana's Fifty Year Club. The Woman's Auxiliary will meet in conjunction with the state meeting.

NEW JERSEY

Poliomyelitis Institute.—The New Jersey Poliomyelitis Institute will be held at the Academy of Medicine in Newark on June 9, and at the Walt Whitman Hotel, Camden, June 10. The morning program will be made up of the present concepts of the nature of poliomyelitis and its methods of spread, the treatment of early poliomyelitis and the management of patients with bulbar and respiratory difficulties. On the afternoon program, physical medicine and rehabilitation, prevention of deformities and roles of the Crippled Children Commission, State Department of Health and Rehabilitation Commission will be discussed.

NEW YORK

Personal.- Dr. Clinton P. McCord, Albany, has been appointed consultant in psychosomatic medicine to the New York State Department of Health.

Community Honors Health Officer.—More than 250 Irondequoit residents, school, town and health officials recently arranged a celebration in honor of Dr. Willis W. Bradstreet, the town health officer since 1918 and school physician for the Durand-Eastman School for twenty-five years. His diligence in establishing diphtheria and smallpox inoculation clinics in Irondequoit has resulted in more than 90 per cent protection of the resident children.

Dr. Beebe Heads Department of Medicine.--Dr. Richard T. Beebe has been appointed professor of medicine and director of the department of medicine at Albany Medical College effective July 1, succeeding Dr. L. Whittington Gorham, director since 1937. Dr. Beebe, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1928, has been dispensary physician in charge of the outpatient department at the Albany Hospital, where he will become physician in chief.

Committee to Aid Handicapped Persons.—The Monroe County Medical Society has formed a permanent committee to deal with employment of physically handicapped persons in Rochester. The group, under the chairmanship of Dr. G. Kirby Collier, will distribute information to employers and employees on compensation and other state and federal laws governing the employment of handicapped persons; hold periodic employer institutes where the value of employing handicapped persons in different types of jobs will be stressed; disseminate information to handicapped persons explaining advantages open to them, through recognized agencies, to train and obtain employment. The committee will be known as the Rochester Committee for the Employment of the Handicapped.

New York City

Merge Obstetric and Gynecologic Services.—Beth Israel Hospital, Stuyvesant Park East and 16th Street, announces the merger of the obstetric and gynecologic services and the appointment of Dr. Henry C. Falk, New York, as director of the service.

Large Bequest for Research.—New York University was bequeathed more than $400,000 from the estate of the wife of the late Dr. Joseph Talbot Maclean. The terms stipulate that income from the bequest shall be applied to carrying on medical research. Dr. Maclean was a graduate in 1876 of Bellevue Hospital Medical College. After years of practice in Ohio and New York, Dr. Maclean died in 1920. Mrs. Maclean's death occurred July 10, 1947.

Columbia Given Eye Institute Library. - Columbia University Library has received as a gift the bibliography section of the library of the former Dartmouth Eye Institute. It was made possible through the efforts of Professor Clifford L. Treleaven, associate professor of optometry at Columbia, and Robert E. Bannon, formerly on the staff of the Dartmouth Eye Institute and now a member of the faculty of optometry at Columbia. The Dartmouth Eye Institute, formerly affiliated with the Dartmouth Medical School, closed in June 1947. Another gift is the private collection of Herman Gould, Brooklyn, retired, which includes a large number of books on vision and related subjects. The Dartmouth bibliography includes a 50,000 card index file of papers and several hundred reprints of articles related to investigations in binocular vision. There are also three hundred translations of important German publications relating to binocular vision, space perception, refraction, visual acuity and allied subjects.

NORTH CAROLINA

Academy of General Practice.—The North Carolina branch of the American Academy of General Practice was organized in Greensboro on February 22, with ninety physicians present. Dr. John R. Bender, Winston-Salem, was elected chairman and Dr. Roscoe D. McMillan, Red Springs, secretary and treasurer.

Cancer Clinic Opens.--A public cancer detection clinic in James Walker Memorial Hospital, sponsored by the New Hanover County Medical Society, opened April 27 in Wilmington. Dr. Ivan M. Proctor, director, state health board's cancer control division, and Mrs. George M. Marshall, commander, state division of the American Cancer Society, were the opening day speakers.

OHIO

Narcotic Violation.--The Bureau of Narcotics, Washington, D. C., reports that Dr. Charles R. Colburn, Osborn, pleaded guilty at Dayton to an indictment charging violation of the federal narcotic law and on January 28 was placed on probation for a period of two years.

State Medical Election.—At the annual meeting of the Ohio State Medical Association in Cincinnati, Dr. Arthur Brindley, Toledo, was installed as president and Dr. Carl A. Lincke, Carrollton, was named president-elect. The next annual meeting is to be held in Columbus the week of April 19, 1949.

Meeting at Zanesville.—At a meeting of the Muskingum County Academy of Medicine in Zanesville, May 13, Dr. Fred W. Rankin, Lexington, Ky., spoke on trends in the surgical treatment of cancers of the lower portion of the intestinal tract; Dr. Louis E. Prickman, Rochester, Minn., on diagnosis and treatment of asthma, and Dr. William D. Seybold, Rochester, Minn., on carcinoma of the lung and of the esophagus.

PENNSYLVANIA

Society News.—The Study Club of the Reading Eye, Ear, Nose and Throat Society was addressed May 5 by Dr. Ferris F. Ketcham, Reading, on "Pathologic Explanation of Common Ophthalmoscopic Findings."

Dietary Instruction for Diabetics.—The Philadelphia County Medical Society's diabetic committee, in collaboration with the Philadelphia Dietetic Association, is presenting four classes for the dietary instruction of diabetic persons at the Society Building, May 27, June 3, 10 and 17, from 7:30 to 9 p.m. Patients attending must have been enrolled by their physicians and must bring notes from their physicians indicating the particular diet recommended. General dietary instruction is given during the first half hour of the class and is followed by individual instruction. There is no registration fee.

VERMONT

State Medical Meeting.—The Vermont State Medical Society with the cooperation of the University of Vermont College of Medicine met May 27 at Burlington, where the following subjects were discussed: atomic energy, its application to medical practice; plastic surgery of the eyelids; diagnosis and treatment of ear infections; recognition and treatment of acute poliomyelitis, and surgical treatment of peptic ulcer.

WISCONSIN

Course in Poliomyelitis.—The University of Wisconsin Medical School, Madison, will present a course in poliomyelitis, June 28–July 3, covering the practical aspects of diagnosis and treatment. Each participating physician will have an opportunity to learn the technics of muscle testing, the application of hot packs, muscle reeducation and respirator care along with the epidemiologic aspects of the disease. The course has been arranged in cooperation with the Wisconsin county chapters of the National Foundation for Infantile Paralysis, and the Wisconsin Hospital Association. Details may be obtained from Dr. Llewellyn R. Cole, coordinator of graduate medical education, Medical School, 418 North Randall Avenue, Madison 6.

WEST VIRGINIA

State Medical Election.—At the recent meeting of the West Virginia State Medical Association, Dr. Thomas F. E. Bess, Keyser, was installed as president and Dr. Thomas G. Reed, Charleston, was made president-elect. Dr. T. Maxfield Barber, Charleston, was reelected treasurer for the twenty-second consecutive term. Dr. Walter E. Vest, Huntington, was reelected delegate to the American Medical Association for a two year term. A new section on neurology was created and will take over the functions of the neurology association organized in Huntington last September. It is the sixth section to be organized within the association.

GENERAL

University of Pittsburgh Alumni Luncheon.--The University of Pittsburgh Medical Alumni will hold a reunion luncheon in the South Ballroom of the Stevens Hotel, Chicago, June 23 at noon.

Electroencephalographers Meeting.—The American Electroencephalographic Society will hold its second annual meeting June 12–14 at the Claridge Hotel, Atlantic City, N.J. The presidential address by Dr. Herbert H. Jasper, Montreal, Canada, will be given at the dinner Saturday evening. The program includes a symposium on the physiologic basis of epileptic discharge.

Association for Study of Internal Secretions.—This association will hold its annual meeting June 18-19 at the Palmer House, Chicago, under the presidency of Dr. Cyril N. H. Long, New Haven, Conn. Ninety-one papers will be presented. The annual dinner will be June 18 at 7:30, when awards will be presented and the president will address the group.

Judd Awards.--At the opening of the Sloan-Kettering Institute for cancer research, April 16, Judd Awards were made to Professor Alexander Haddow, director, Chester Beatty Research Institute, Royal (Free) Cancer Hospital, London, for research on carcinogenesis, and to Dr. Eric Boyland, Ph.D., professor of biochemistry, University of London, for studies on the metabolism of carcinogens.

Medical Alumni Meeting.—The University of Pennsylvania Medical Alumni will hold a dinner at the convention of the American Medical Association, Chicago, Wednesday, June 23, at the Lake Shore Club, 850 Lake Shore Drive. On arrival in Chicago alumni should contact Miss Frances R. Houston, executive secretary of the Medical Alumni Society, at the University of Pennsylvania registration booth.

Meeting of Tuberculosis Physicians.—The American Academy of Tuberculosis Physicians will hold its annual meeting at the Palmer House, Chicago, June 19, under the presidency of Col. George F. Aycock, Nashville, Tenn. Among the subjects to be discussed are streptomycin-resistant tubercle bacilli, tuberculoma and meningitis, use of oleothorax for the unexpandable lung, and thiamine and methionine. The luncheon speaker will be Dr. William F. Petersen, Chicago.

Johns Hopkins Alumni Dinner.—The Alumni Association of Johns Hopkins University is sponsoring a dinner Thursday evening, June 24, during the American Medical Association meeting, to honor Drs. Helen B. Taussig and Alfred Blalock, who recently received the Passano Foundation Award for their development of the surgical treatment of "blue babies." The dinner will be in the Hotel Stevens, Chicago, at 6 p.m. and will be terminated to conform with the other meetings scheduled for that evening.

Conference of State Associations Officers.—The annual Conference of Presidents and Other Officers of State Medical Associations will meet at the Sheraton Hotel, Chicago, June 20, 12:30-5 p.m., under the presidency of Dr. L. Howard Schriver, Cincinnati. The group will be addressed by:

Joseph H. Howard, Bridgeport, Conn., Despotism by Consent of the Governed.
Paul R. Hawley, Washington, D.C., The Blue Shield-Blue Cross Program.
John W. Cline, San Francisco, Why a State Medical Association?

International Congress.—The International Federation of Sport-Medicine has announced its general assembly will be held June 29 in Prague, Czechoslovakia. The seventh International Medical Congress of Physical Education will be held July 1-5 in connection with the XI Sokol Festival, Prague. At the conclusion of the congress, trips through Czechoslovakia will be organized for the members. The application fee of 400 koruns allows for the railway reduction for the participation at the Sokol festival and for the Congress publications. Applications from abroad should be sent to Professor MUDr. Jiri Kral, Praha II., Vladislovova 15, Czechoslovakia.

Train Tuberculosis Fellows in Denver.—Four fellows, appointed by the Interim Commission of the World Health Organization from various countries, on July 1 will begin six months' free instruction in methods of tuberculosis prevention, control and treatment at the National Jewish Hospital, Denver. Beginning Jan. 1, 1949 the World Health Organization will send annually twelve fellows who will receive instruction at this hospital, the University of Colorado School of Medicine, Fitzsimons General Hospital and other Denver institutions. Traveling expenses fill be financed by the organization. Living expenses will be contributed by the International Foundation for Medical Research and Education.

Chest Physicians Annual Meeting.—The American College of Chest Physicians will meet at the Congress Hotel, Chicago, June 17-20 under the presidency of Major General Shelley U. Marietta (Retired), Washington, D. C. The guest speakers include:

Francisco Torres, Cordoba, Argentina, Pulmonary Resection in Tuberculosis.
Gumersindo Sayago, Cordoba, Argentina; Jose I. Baldo, Caracas, Venezuela; Arlindo de Assis, Rio de Janeiro, and Ismael Cosio Villegas, Mexico D.F., Mexico, experience with BCG vaccination in their respective countries.
Andre Soulas, Paris, France, Study of Bronchial Stenosis in Bronchopulmonary Tuberculosis.

Clinics and round table luncheons limited to twenty to thirty persons each have been scheduled.

Medical Milk Commissions.—The American Association of Medical Milk Commissions, Inc., will hold its annual convention at Avalon Hotel, Waukesha, Wis., June 18-21. Physicians and others interested in improving standards for production of milk are invited. On Saturday afternoon a seminar on nutrition and certified milk has been planned, the participants being Dr. Tom D. Spies, Chicago, Dr. Christian E. Segard, Madison, and Paul H. Phillips, Ph.D., Madison. Visits to certified milk farms in Waukesha County will begin at 10 a.m. Sunday. At the banquet Sunday at 7 p.m. Dr. John P. O'Neil, chairman, Committee on Nutrition, Chicago Medical Society, will speak on "What Does the Physician Want in Prescribing Certified Milk?"

International Poliomyelitis Conference.—Twenty international medical scientific authorities will present papers on poliomyelitis at the first International Poliomyelitis Conference at the Waldorf-Astoria Hotel, New York, July 12-17. Following are the speakers:

Albert B. Sabin, Cincinnati, Epidemiologic Patterns of Poliomyelitis in Different Parts of the World.
Irvine McQuarrie, Minneapolis, Evolution of Signs and Symptoms.
Herbert J. Seddon, Oxford, England, Economic Aspects of Management of Poliomyelitis.
David Bodian, Baltimore, Pathologic Anatomy.
Fritz Buchthal, Copenhagen, Denmark, Pathologic Physiology.
John A. Anderson, Salt Lake City, Diagnosis and Treatment.
Elexious T. Bell, Minneapolis, Progressive Pathology.
Arthur L. Watkins, Boston, Progressive Disabilities.
Ralph K. Ghormley, Rochester, Minn., Progressive Deformities.
William T. Green and Joseph S. Barr, Boston, Management of Poliomyelitis.
Karl T. Neubuerger, Denver, Bulbar Poliomyelitis: Pathologic Aspects.
Abe B. Baker, Minneapolis, Neurologic Signs in Bulbar Poliomyelitis.
James L. Wilson, Ann Arbor, Mich., Treatment of Bulbar Poliomyelitis.
Isabel M. Morgan, Ph.D., Baltimore, Mechanisms of Immunity in Poliomyelitis.
John R. Paul, New Haven, Conn., Immunogenic and Other Types of Poliomyelitis Viruses.
Raymond N. Bieter, Minneapolis, Experimental Chemo-Therapy.
Joseph C. Molner, Detroit, Public Health Measures.
Claude W. Munger, New York, Hospitalization.
Miss Elizabeth P. Rice, New Haven, Conn., The Families of Children with Poliomyelitis.

CORRECTION

Alcohol - Dextrose and Dextrose - Vitamin Solutions - The report on "Alcohol-Dextrose and Dextrose-Vitamin Solutions for Intravenous Infusion Not acceptable for N.N.R." which appeared under Council on Pharmacy and Chemistry in THE JOURNAL, May 29, pages 462-463, should be corrected to omit the last two paragraphs of the report as it appeared on page 463.

Marriages

LLOYD H. GOAD, Gary, Ind., to Miss Lois Elaine Otto in Sioux City, Iowa, January 4.

JOHN T. MORRIS, Birmingham, Ala., to Dr. SYLVIA J. BURBANK of Pleasantville, Iowa, January 1.

JOHN F. DIXON Jr., Garden City, N.Y., to Miss Ruth Hoerber of Ridgewood, recently.

NIGEL ARTHUR BUXTON to Dr. Elmira Mary Richli, both of Surat, Bombay Presidency, India, March 23.

EDWARD F. LEWISON to Miss Betty S. Fleischmann, both of Baltimore, March 21.

ARTHUR ATKINS SWEETSER Jr., Scranton, Pa., to Miss Jeanette Susanna Buczko of Mount Carmel, January 31.

JOEL W. SALON to Miss Marilyn Green, both of Cleveland, April 11.

Deaths

Warren Coleman ⊕ Augusta, Ga.; born in Augusta, Ga., in 1869; University of the City of New York Medical Department, New York, 1891; professor emeritus of clinical medicine at the New York University College of Medicine; served as professor of clinical medicine at the University of Georgia School of Medicine; formerly professor of clinical medicine and applied pharmacology at Cornell University Medical College in New York; member of the Medical Society of the State of New York, Association of Military Surgeons of the United States, Association of American Physicians, American Association for the Advancement of Science, American Gastro-Enterological Association, American Genetic Association and others; fellow of the American College of Physicians; consulting physician to the Lenox Hill and Bellevue hospitals in New York; specialist certified by the American Board of Internal Medicine; died February 13, aged 79.

Joseph A. O'Hara ⊕ New Orleans; born in New Orleans Jan. 23, 1869; Medical Department of Tulane University of Louisiana, New Orleans, 1900; past president and executive officer of the state board of health of Louisiana; formerly professor of preventive medicine and public health, Louisiana State University School of Medicine; past president of the Louisiana Society for Mental Hygiene, Louisiana State Medical Society and Louisiana State Tuberculosis Commission; member of the Southern Medical Association, Southern Psychiatric Association and American Psychiatric Association; coroner of Orleans Parish from 1904 to 1925; served on the local draft board during World War I; for many years on the staff of De Paul Sanitarium; died at Hotel Dieu February 25, aged 79, of congestive heart disease and arteriosclerosis.

Thomas Raymond Healy ⊕ Boston; born March 13, 1879; Dartmouth Medical School, Hanover, N.H., 1899; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., American Roentgen Ray Society and the American College of Radiology; past president of the New England Roentgen Ray Society; served during World Wars I and II; formerly associated with the U. S. Public Health Service; affiliated with Amesbury (Mass.) Hospital, Anna Jaques Hospital, Newburyport, Benjamin Stickney Cable Memorial Hospital, Ipswich, and St. Elizabeth's Hospital; died February 25, aged 68.

Hawley Seager Sanford ⊕ Detroit; born in Milwaukee, Jan. 24, 1909; Harvard Medical School Boston, 1933; interned at the George F. Geisinger Memorial Hospital in Danville, Pa.; formerly a fellow in surgery at the Mayo Foundation in Rochester, Minn.; certified by the National Board of Medical Examiners; member of the Association for Research in Nervous and Mental Disease and of the Central Neuropsychiatric Association; a major in the Army Air Force during World War II; neuropsychiatrist on the staff of Henry Ford Hospital; died February 24; aged 39, of coronary sclerosis.

Walter Clifton Deakyne ⊕ Smyrna, Del.; born in Smyrna Del., Dec. 31, 1891; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919; past president of the Medical Society of Delaware and of the Kent County Medical Society; served during World War I; served as examining physician for the New Castle County Selective Service Board 2 during World War II; on the staff of the Kent General Hospital in Dover; died February 11, aged 56, of coronary thrombosis.

William Sisson Gardner ⊕ Baltimore; College of Physicians and Surgeons, Baltimore, 1885; an Affiliate Fellow of the American Medical Association; served as treasurer and president of the Medical and Chirurgical Faculty of Maryland; fellow of the American College of Surgeons; professor emeritus of gynecology at the University of Maryland School of Medicine; for many years affiliated with the Mercy and University hospitals; died February 18, aged 86.

Augustus A. Babione ⊕ Luckey, Ohio; University of Maryland School of Medicine, Baltimore, 1903; died in Flower Hospital, Toledo, February 13, aged 75, of virus pneumonia.

Eugene D. Bergeron, Kankakee, Ill.; Chicago Medical College, 1881; died in St. Mary's Hospital February 11, aged 88, of coronary heart disease and cerebral hemorrhage.

William Farmer Briney, Chicago; Bennett Medical College, Chicago, 1897; died February 14, aged 78, of cardiovascular renal disease.

James A. Brown, Portsmouth, Va.; Leonard Medical School, Raleigh, 1903; died February 5, aged 70.

Mary Brown, Drexel Hill, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; died February 5, aged 86.

Frank N. Carrier, Santa Rita, N.Mex.; Jefferson Medical College of Philadelphia, 1893; fellow of the American College of Surgeons; died in a local hospital February 5, aged 75, of adenocarcinoma of the prostate.

Fred Clifford Cave, Oxford, Kan.; Barnes Medical College, St. Louis, 1903; member of the American Medical Association; served during World War I; died in Veterans Administration Hospital, Hines, Ill., Dec. 12, 1947, aged 71, of carcinoma of the bladder.

Leonidas William Cobun, Morgantown, W. Va.; Baltimore Medical College, 1898; member of the American Medical Association; past president of the Monongalia County Medical Society; died February 20, aged 78, of cerebral hemorrhage.

Arthur R. Collins, Watauga Valley, Tenn.; Tennessee Medical College, Knoxville, 1902; died in St. Elizabeth Hospital, Elizabethtown, February 19, aged 72.

John J. Conway, Warren, R.I.; Georgetown University School of Medicine, Washington, D. C., 1901; member of the American Medical Association; served as school physician, police surgeon and coroner; formerly chairman of the school committee and for a time superintendent of the local schools; died February 11, aged 70.

George A. Davis, De land, Fla.; Atlanta Medical College, 1890; member of the American Medical Association; for many years city and county health officer, and physician for the Florida East Coast and Atlantic Coast Line railways; died at the De Land Memorial Hospital February 20, aged 89.

Herman Clyde Duke ⊕ Richwood, Ohio; Eclectic Medical Institute, Cincinnati, 1898; for many years a member of the school board; president of the board of trustees of the Richwood Public Library, of which he had been one of the organizers; died February 7, aged 72 , of angina pectoris.

Warner Leaming Eddy ⊕ Milan, Ill.; Rush Medical College, Chicago, 1892; past president of the Rock Island County Medical Society; served as mayor, member of the village council and board of health and president and member of the public school board; past president of the staff of St. Anthony's Hospital, where he died February 9, aged 78, of coronary occlusion.

Arthur Thomas Fagaly ⊕ Lawrenceburg, Ind.; Miami Medical College, Cincinnati, 1893; served during World War I; died February 11, aged 77, of myocardial degeneration.

Liberty Eaton Fellows ⊕ Newton, Iowa; University of Michigan Medical School, Ann Arbor, 1918; member of the American Medical Association; affiliated with the Mary Frances Skiff Memorial Hospital; died February 17, aged 55, of coronary thrombosis.

Edward L. W. Ferry, Millers Tavern, Va.; Medical College of Virginia, Richmond, 1900; member of the American Medical Association; died in the Johnston-Willis Hospital, Richmond, February 17, aged 74, of pulmonary thrombosis.

James H. Fiser, Malinta, Ohio; Toledo Medical College, 1894; member of the American Medical Association; affiliated with the S.M. Heller Memorial Hospital in Napoleon; died February 18, aged 84, of cerebral hemorrhage.

Cyrus Fisher, Central City, Iowa; College of Physicians and Surgeons, Keokuk, 1880; died January 20, aged 93, of heart disease.

Howard Bishop Garner ⊕ Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; fellow of the American College of Physicians; member of the Association of Military Surgeons of the United States; in 1905 member of House of Delegates of the American Medical Association; died February 13, aged 80.

James Shackelford Gay, Ashland, Ala.; Birmingham Medical College, 1905; member of the American Medical Association; died February 3, aged 69.

William Walden Gibbs ⊕ Chicago; Indiana University School of Medicine, Indianapolis, 1917; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; for many years affiliated with Provident Hospital, where he died February 15, aged 57.

Bruce Bentley Giffen, San Diego, Calif.; Ohio Medical University, Columbus, 1906; assistant superintendent of San Diego County Hospital, where he died February 9, aged 68.

Robert Rose Gillespy, New York; Tulane University of Louisiana School of Medicine, New Orleans, 1922; member of the American Medical Association and of the Medical Association of the State of Alabama; served during World Wars I and II; member of the medical board of the New York Life Insurance Company; died in New York Hospital February 17, aged 49, following a pneumonectomy.

Ernst Goldmann, Carlock, Ill.; Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultat, Breslau, Prussia, 1923; interned at St. Mary's Hospital in Saginaw, Mich.; died February 18, aged 49, of heart disease.

Anna M. Gove ⊕ Greensboro, N.C.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1892; for many years college physician to the Woman's College of the University of North Carolina, where the college infirmary bears her name; died January 28, aged 80.

Henry James Graham, Mishawaka, Ind.; Detroit College of Medicine, 1900; fellow of the American College of Surgeons; past president of the St. Joseph County Medical Society; affiliated with St. Joseph Hospital; died February 6, aged 72, of coronary thrombosis.

William Perry Griffin, Carlsbad, N. Mex.; Marion-Sims College of Medicine, St. Louis, 1898; died February 13.

Thomas C. Guthrie, Smithville, Ark.; College of Physicians and Surgeons, Little Rock, 1908; member of the American Medical Association; past president of the Lawrence County Medical Society; died February 11, aged 67, of coronary occlusion.

Stanton Heck, Salem, Ohio; Medical College of Ohio, Cincinnati, 1889; formerly vice president of the American Roentgen Ray Society; for many years affiliated with the Salem City Hospital; died February 18, aged 85.

Nathan Just Helfgott, Washington, D. C.; Maryland Medical College, Baltimore, 1912; formerly practiced in Baltimore, where he was on the staffs of Johns Hopkins and Sinai hospitals; on the staff of the Doctors Hospital; died February 20, aged 62, of bronchiectasis and cardiovascular renal disease.

Ralph David Herlinger ⊕ Warren, Ohio; Johns Hopkins University School of Medicine, Baltimore, 1919; fellow of the American College of Surgeons; past president of the Trumbull County Medical Society; served during World War I; affiliated with the Trumbull Memorial Hospital, where he died February 2, aged 55, of complications following an appendectomy.

Henry Hofmann ⊕ Chicago; Northwestern University Medical School, Chicago, 1910; member and past president of the staff of St. Bernard's Hospital; died February 14, aged 62, of cerebral hemorrhage.

Charles Frederic Inlow ⊕ Shelbyville, Ind.; Rush Medical College, Chicago, 1922; served during World War I; formerly secretary of the city board of health; one of the founders of the Inlow Clinic; died in the University Hospital, Ann Arbor, Mich., February 14, aged 53, of hypertension.

Rutherford Bouchard Irones, San Diego, Calif.; Medical Department of the University of California, San Francisco, 1900; formerly mayor; served overseas during World War I; died in the Veterans Administration Center, Los Angeles, February 13, aged 70.

Guy S. Kirby, Marion, N. C.; University College of Medicine, Richmond, 1897; member of the American Medical Association; for many years county physician and surgeon for the Southern Railroad; affiliated with the Marion General Hospital; member and for many years chairman of the board of the State Hospital, Morganton; died in the Norburn Hospital, Asheville, February 15, aged 73.

Charles E. Lukens ⊕ Albuquerque, N. Mex.; St. Louis College of Physicians and Surgeons, 1898; served as superintendent of the Childrens Home and Hospital; died February 14, aged 78, of Paget's disease.

Frank Petrie Mabee, Detroit; Detroit College of Medicine and Surgery; 1919; member of the American Medical Association; fellow of the American College of Surgeons; affiliated with the Alexander Blain Hospital, Woman's Hospital and Grace Hospital, where he died February 11, aged 67, of hypertension.

Ethel Glen McPherson ⊕ Dearborn, Mich.; Indiana University School of Medicine, Indianapolis, 1923; died January 28, aged 51, of coronary thrombosis.

Samuel Thomas Millard, Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1906; member of the American Medical Association; served during World War I; on the staffs of Stormont, St. Francis and Christ's hospitals; died February 5, aged 71, of heart disease.

Herbert Strong Nichols ⊕ Portland, Ore.; Hahnemann Medical College and Hospital of Philadelphia, 1895; formerly assistant clinical professor of surgery at the University of Oregon Medical School; member of the North Pacific Surgical Association; fellow of the American College of Surgeons; affiliated with St. Vincent's Hospital and the Good Samaritan Hospital, where he died February 17, aged 79, of cerebral thrombosis.

Robert Tate Nowlin ⊕ Memphis, Tenn.; Memphis Hospital Medical College, 1913; member of the staff of St. Joseph Hospital, where he died February 28, aged 68.

Harry Otten ⊕ Springfield, Ill.; Rush Medical College, Chicago, 1912; formerly vice president of the Illinois State Medical Society; past president and vice president of the Sangamon County Medical Society; fellow of the American College of Surgeons; served as a trustee of the Springfield Medical Library Association; affiliated with St. John's Hospital and the Memorial Hospital, where he died February 18, aged 65, of coronary disease and fracture of the pelvis as the result of a fall on the ice.

Patrick Henry Owens ⊕ Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1912; deputy coroner and formerly county coroner; served during World War I; affiliated with St. Mary's, St. Margaret's and St. Joseph's hospitals; died February 11, aged 64, of coronary occlusion.

Moses D. Pass, Broadwater, Neb.; Cleveland Medical College, Homeopathic, 1896; Kentucky University Medical Department, Louisville, 1899; died in Kearney, February 17, aged 86.

Otto Pfaff ⊕ Oneida, N.Y.; University of the City of New York Medical Department, New York, 1888; past president of the Fifth District Branch of the Medical Society of the State of New York; served as mayor of Oneida, city health officer, president of the water board, county coroner and postmaster; an officer during World War I; for many years surgeon for the New York Central Railroad; died in the City Hospital February 19, aged 84, of cerebral accident.

George Lawrence Pike, Gladwyne, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; affiliated with Gladwyne Colony; died February 17, aged 71, of cerebral thrombosis.

Albert Porter, Cleveland Heights, Ohio; Cleveland Homeopathic Medical College, 1899; died February 14, aged 81, of arteriosclerotic heart disease and diabetes mellitus.

Francis Joseph Ready, Washington, D. C.; Georgetown University School of Medicine, Washington, 1913; member of the American Medical Association; formerly associate professor of clinical medicine at his alma mater; served during World War I; died in the U.S. Naval Hospital, Bethesda, Md., February 19, aged 62.

Sidney D. Redmond, Jackson, Miss.; Illinois Medical College, Chicago, 1897; also an attorney; died in the Baptist Hospital February 11, aged 76, of paralytic ileus.

Philander Chase Riley ⊕ Lieutenant Colonel, U. S. Army, retired, Fayetteville, N. C.; Columbian University Medical Department, Washington, D.C., 1899; served during World War I; entered the medical corps of the U. S. Army as a major on Sept. 14, 1920; promoted to the rank of lieutenant colonel on Aug. 8, 1937; retired Feb. 28, 1939; returned to active duty on Feb. 18, 1941, serving until Jan. 5, 1944; died February 14, aged 72.

Leon Jerome Robinson ⊕ Palmer, Mass.; Boston University School of Medicine, 1934; interned at the Boston City Hospital; certified by the National Board of Medical Examiners; specialist certified by American Board of Psychiatry and Neurology, Inc.; clinical director of research in epilepsy at the Monson State Hospital; died in the Springfield (Mass.) Hospital February 1, aged 41, of cerebral hemorrhage.

Emma L. Sabin Sherman, Los Angeles; New York Medical College and Hospital for Women, Homeopathic, New York, 1901; died February 13, aged 93.

Ernest Frederick Sickenberger, Woodridge, N.J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; also a graduate in pharmacy; died in Hackensack (N.J.) Hospital February 10, aged 88, of peptic ulcer.

Frank Farrow Simpson, Honolulu, Hawaii; University of Pennsylvania Department of Medicine, Philadelphia, 1893; fellow and formerly member of the board of regents of the American College of Surgeons; served during World War I; died February 10, aged 80, of complications following pneumonia.

Philip Sheridan Steelman, Linwood, N.J.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; died in Shore Memorial Hospital, Somers Point, January 13, aged 80, of arteriosclerosis, arthritis and intestinal obstruction.

Myron Scott Stringer, Florence, Ala.; Emory University School of Medicine, Atlanta, 1923; at one time a member of the faculty of his alma mater; died February 13, aged 46, of heart disease.

William Van Zanten, Sheboygan, Wis.; Milwaukee Medical College, 1902; member of the American Medical Association; formerly county coroner; died in St. Nicholas Hospital February 16, aged 78.

Thomas Dupree Vassar, Lakeland, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1912; member of the American Medical Association; served on the state board of medical examiners; died February 12, aged 60.

James Oliver Wallace ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1906; formerly on the faculty of the University of Pittsburgh School of Medicine; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the American Orthopaedic Association; fellow of the American College of Surgeons; on the staffs of Mercy, Children's and Suburban General hospitals; died February 7, aged 71, of coronary occlusion.

Henry V. Walter, Rothsville, Pa.; Jefferson Medical College of Philadelphia, 1904; member of the American Medical Association; past president of the Lancaster County Medical Society; served on the staff of St. Joseph's Hospital in Lancaster; died January 28, aged 69, of coronary thrombosis.

James Blaine Walton, Denver; University of Colorado School of Medicine, Denver, 1919; member of the American Medical Association; died in St. Luke's Hospital February 6, aged 63, of cerebral hemorrhage.

Charles Edgar Welch ⊕ Nelsonville, Ohio; Hahnemann Medical College and Hospital, Chicago, 1896; served during World War I; past president of Athens County Medical Society; president of the First National Bank; died February 18, aged 76, of coronary occlusion.

Herman Joseph Whitehead, Union, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; died in St. Joseph's Sanatorium, Dubuque, February 10, aged 86, of acute cardiac dilatation and arteriosclerosis.

Lee Adrian Whitney ⊕ Rochester, N.Y.; University of Buffalo School of Medicine, 1901; affiliated with the Craig Colony, Sonyea, and St. Mary's, Genesee, Rochester State, Monroe County and Park Avenue hospitals; died February 14, aged 74.

Neri Barndt Williams ⊕ Perkasie, Pa.; Jefferson Medical College of Philadelphia, 1892; also a graduate in pharmacy; died February 4, aged 84, of intestinal obstruction.

Jacob B. Young, Somerset, N.Y.; University of Buffalo School of Medicine, 1900; died January 2, aged 85, of diabetes mellitus and gastric ulcer.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 30, 1948.

Regulations for the National Health Service

Though no attempt at agreement between the government and the British Medical Association has been made, the former continues to publish regulations which come into force on July 5. These include details which will be required of dentists and doctors accepting service, and particulars of payment and the method by which the public can select their practitioners. They must choose a practitioner from any local list and present him with a medical card. Physicians for children under 16 years will be chosen by their mothers or, in their absence, by their fathers, or, in the absence of both, by guardians. For persons incapable by reason of old age, sickness or infirmity, physicians will be chosen by relatives or others having charge of them. Patients will have the right to change their doctors and to have the temporary services of others while moving from place to place or while on holiday. On the other hand, a physician can have a patient removed from his list at any time by giving seven days' notice. But the medical practitioners of each area will be collectively responsible for all service patients under a general allocation scheme.

No doctor practicing alone may have more than 4,000 public patients on his list. In the case of two or more practitioners in partnership, the maximum number of any one partner must be 5,000, but the average for all the partners must not exceed 4,000. Where permanent assistants are employed the number of patients may be increased to an extent not exceeding 2,400 in respect to each assistant. The practitioner's duty to the patient includes "all proper and necessary treatment" but not services involving the application of special skill or experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess. If such treatment is available as part of the hospital and specialist services, the patient must be informed of the fact, and, if he desires to avail himself of it, the practitioner must take the necessary steps to enable him to receive such treatment. For maternity services the executive councils must keep separate lists of practitioners having obstetric experience, from which a woman may select one if her own doctor is not on it.

With regard to remuneration, a fixed annual payment of $1,200 is to be made to the practitioner, provided he has the minimum number of patients, a capitation payment and payments in respect to temporary residents, for emergency treatment of a person not on his list, in respect to mileage and in cases where the services of a second practitioner are required for administration of an anesthetic. In addition there are to be inducement payments in areas sparsely populated or for any other reason unattractive to practitioners. Also, payments will be made for the training of assistants. Superficially the scheme appears to be well devised to meet every contingency. But, apart from the objections previously given, there is the great snag of flooding doctors' offices with hypochondriacs when all medical treatment is free, leaving the overworked practitioner insufficient time for those really ill.

The Independence Fund of the British Medical Association

The Special Representative Meeting of the British Medical Association decided to establish an Independence Fund to provide financial aid to practitioners who may suffer hardship in the event of the continuation beyond July 5 of the conflict between the medical profession and the government and to provide, through local Independence Committees throughout the country, an organization for maintaining the unity of the profession in its determination not to accept service under the National Health Service Acts until such amendments have been made as will preserve the freedom of the profession. The National Insurance Defence Trust, already established, has deposited with the fund an initial contribution of $1,600,000. The trustees of the fund are appealing to individual physicians to give what they can to make the fund effective. They suggest that there are few practitioners in established practice who cannot afford to give $400 as a first contribution. In their appeal the trustees say: "The danger to the independence of our profession is a measure of the need for generous giving. We appeal to you to give all you can afford to conserve the freedom which neither we nor the public can afford to lose."

International Congress of Industrial Medicine

The ninth International Congress of Industrial Medicine will be held in London Sept. 13-17. The first congress was held in 1906 and the last, ten years ago, the long interval being due to the war. There will be six sections dealing with the various aspects of industrial health, social, environmental, nursing, clinical, practical and special. Rehabilitation will be dealt with separately. Among the topics to be discussed are: young persons in industry; the determination of dusts in air; administration and training; dermatology, burns; industrial medicine in the tropics, and the training of industrial medical officers. Arrangements have been made to visit rehabilition centers, clinics and hospitals. Those who want further information should communicate with the Organizing Secretary, Room 501, Garden Court Wing, B.M.A. House, Tavistock Square, London, W.C. 1.

ITALY

(From Our Regular Correspondent)

March 23, 1948.

Streptomycin for Trachoma

Focosi and Scalfi of the university in Sassari reported to the Association of Experimental Biology the results of their efforts to cure trachoma with streptomycin alone or combined with sulfonamide compounds.

The streptomycin was applied in the form of a lotion for the eyes, each drop containing about 1,000 gammas (1 mg.) of the substance.

In 2 cases of papillary trachoma subconjunctival injections of a streptomycin solution in addition to the instillations were given (into the conjunctival fornix and in the folds of the passage). The speakers concluded that streptomycin has a therapeutic effect on the trachomatous nodule, but it may not become manifest before thirty days of continuous treatment. The combined use of streptomycin and sulfonamide compounds did not demonstrate any particular therapeutic efficiency. In cases of florid trachoma the streptomycin had little or no effect. The trachomatous pannus was bene-

fited by the streptomycin, but the effect of the streptomycin was in general not superior to that of the sulfonamide compounds.

The Municipal Medical Association

The Italian Municipal Medical Association held its national congress in Montecatini Terme. Problems for discussion included the municipal physician, pensions, relationship with the Supreme Reciprocity Board and the project of the Public Health League. Concerning a public health career, the congress expressed its vote that the profession should be freed from actual dependence on the community and should be regionalized or provincialized. Concerning the pensions and considering the devaluation of the lira, the request was confirmed to adapt the salaries of these public health men to the actual costs of living. Professor Lucente of Rome also recommended a scheme of reform for the pension funds.

The relationship with the Reciprocity Board, which just now presents the most burning problem for the profession, the subject of a report by Dr. De Vita, was discussed vigorously without reaching a decision. It was decided that an appropriate commission should study the new requests of the members of the medical profession. The next congress will be held in Naples.

Allergy and Appendicitis

At a meeting of the Italian Society of Experimental Biology at Sassari, Dr. Giuseppe D'Aste reported his research on allergy in the pathogenesis of appendicitis. The results of this research seem to confirm the suspicion that in certain forms of appendicitis the allergic-hyperergic mechanism of some alimentary substances may play an important part in the pathologic and clinical picture of appendicopathy. While these substances constitute a physiologic stimulus to reaction in normal persons, they may become pathologic stimuli in other subjects who present a specific neurohormonal dysmorphism.

Hormones and Tumors

At the Medical Academy "Filippo Pacini" at Pistoia , Professor Bruno Borghi, director, general pathologic institute, and acting president of the University of Florence, discussed the relation between hormones and tumors. By examining the experimental data concerning the possible formation of cancerogenic substances directly derived from hormones in the organism, and particularly from sex hormones, the speaker reached negative conclusions, making all similar concepts unworthy of consideration.

With regard to the cancerogenic function exercised by the follicular hormone on the mammary glands, results have demonstrated that the hormone does not act as a true agent of neoplasia but only as an accessory factor which prepares the way for normal phenomena of proliferation in which the cancerous degeneration may be induced by hereditary factors. In strains of mice in which such hereditary factors do not exist the follicular hormone does not produce any neoplasia.

Testosterone does not seem to be endowed with oncoblastic property, either directly or indirectly. The same may apply to the hormones obtained from other endocrine glands including Evans' hormone, which proved to activate normal growth exclusively.

Discussion of Infravirus

At a meeting of the Academy of Science of Ferrara, Professor de Gaetani discussed the problem of infravirus. He emphasized that the study of infravirus may be limited to the special corpuscles capable of provoking a pathogenic action which could be reproduced with the filtrate of the tissue fluid of the affected subject; there may therefore be excluded from this study the true inframicrobes, the filtrable phases of some of the microbes and the lesions produced by some hematophage metazoa. The study of such corpuscles has demonstrated that they are of variable size from 10 to 175 millimicrons; their form is nearly always asymmetric, and they are exceptionally crystalline; membrane and organized structure are missing; the chemical composition is eminently nucleoproteid, and lipids may sometimes be present; they are deprived of water and of respiratory and nutritive activity; their enzymatic system is incomplete. The pathogenic mechanism is a disintegrating one which disturbs the metabolic activity of the cells and may contribute to lysis of the cells or to their proliferation in a granulomatous or neoplastic sense.

As to the nature of infraviruses, one cannot deny that they are an extremely elementary form of life based on an intramolecular rather than an intermolecular organization. One cannot deny, on the other hand, that they are inert in themselves.

MADRID

(From Our Regular Correspondent)

April 25, 1948.

Work of Dr. Pascual

Dr. E. Oliver Pascual, professor at the Madrid General Hospital, has been appointed official discussant to the Inter-American Congress of Digestive Pathology and Nutrition to be held at Buenos Aires. He will discuss "Noncalculous Hepatopathies."

Since 1930 Professor Oliver has done research on many problems of the digestive system and nutrition. By studying deficient diets, especially those lacking in vitamins of the B complex, he proved the appearance of an intestinal dysbacteriosis that increases susceptibility to infection, which in turn sets up dysbacteriosis and demands an increase of vitamins and other factors in the diet. This dysbacteriosis in his opinion is part of a clinical entity, viz., "hepatoenteropathy," and is never absent in any case of hepatoenteric disorder. Dr. Oliver's research on the intestinal flora revealed that in all hepatoenteropathies the organism's requirements of liposoluble and hydrosoluble vitamins and, sometimes, of certain salts are increased. In studying the intestinal flora in patients with deficiency diseases he found salmonellosis in many who have multiple hypovitaminosis. By implanting a normal breed of colon bacilli he succeeded in normalizing nutritional deficiencies and in some cases obtained as good results as those arrived at with sulfaguanidine.

He began the study of dysbacteriosis in 1935 and showed that summer diarrheas are really hepatoenteric reactions in which sometimes the gallbladder plays a part, and sometimes the pancreas or the appendix, while at other times gastric symptoms are lacking even though there is atropic gastritis with achlorhydria.

In recent years, Professor Pascual has concentrated on the pathology of the small intestine, and to him and his collaborators - Arias Vallejo, Torres, Montejo, Luengo, Oliver (Jr.), Galan, Hernandez, Castillo, Costi and Vega Diaz, - priority is due in relation to research on this subject undertaken in Spain. Their papers have appeared in various Spanish journals (*Semana medica espanola, Clinica y laboratorio, Revista clinica espanola,*

Medicina clinica, and *Revista espanola de las enfermedades del aparato digestivo y de la nutricion*, of the last-named journal, Dr. Oliver Pascual is editor).

New Professors at University of Madrid

After a competitive examination, the Chair of Urology in the Madrid Faculty of Medicine has been awarded to Dr. Alfonso de la Pena, a son of the doctor who until recently held the same chair at Madrid. He has been trained in various centers of Europe and America. A licentiate of the Madrid Faculty of Medicine (1927), he was fellow in urology at the Mayo Clinic, Rochester, Minn., and held a bursary at the Memorial Hospital, New York. For two years he worked in Professor von Lichtenberg's Urology Department in Berlin, where he did research. In 1944 he again visited the North American universities. He is the author of several books and the originator of various technics in his specialty.

Also in a recent competitive examination, Dr. J. Botella Llusia was awarded the Chair of Obstetrics and Gynecology at the Madrid Faculty of Medicine. He succeeds Professor M. Varela Radio, one of the younger masters, who was, however, excluded from his chair from political and personal motives. Professor Botella Llusia, son of a famous Madrid gynecologist, is now taking up teaching in Madrid after having held a similar position (also won by competitive examination) at a provincial university. He brings to his work the strength and all the enthusiasm of his youth.

BRAZIL

(From Our Regular Correspondent)

SÃO PAULO, April 23, 1948.

Intestinal Parasitosis in Employees

Based on records from the Institute of Pensions and Retirements for Commercial Employees, Drs. Merrame Adura and Jose Gentil presented a study of the incidence of intestinal parasites in 2,556 employees.

The cases were detected among 14,000 patients attended in 1946 by the Medical Ambulatorium of the institute.

Centrifugation and fluctuation in zinc sulfate, as recommended by Faust and associates, was the method used; they employed also the direct method after a saline purge, whenever required by the physician. There were 3,228 tests made of which 3,145 were by the Faust method and 83 by direct examination. In a majority of cases repetition of tests was necessary for diagnosis (1,038) and in some cases (85) for therapeutic control. Eight hundred and sixty patients manifested protozooses; 295 had worm infestation and 235 showed associated parasitoses; this was a total of 1,480, or about 57.9 per cent of the group studied.

The Institute of Pensions and Retirements for Commercial Employees gives medical aid to industrial employees, teachers, bookkeepers, barbers and owners of commercial magazines.

Drs. Merrame and Gentil said that if the real incidence of amebiasis is considered (as Dacio de Amaral calculated it) then the percentage of results positive for Endameba histolytica will be not 10 per cent but double that figure, and there will be not 57.9 per cent but practically 68 per cent, a high incidence of intestinal parasitoses in large cities. Prominent among the protozooses are amebiasis and giardiasis. Among helminthiases are ancylostomiasis (hookworm), strongyloidiasis, ascariasis (roundworm) and hymenolepiasis. Amebiasis alone showed an incidence of 20.68 per cent.

Clinical signs were, as a rule, varied and generally vague: anemia, vague abdominal pains and constipation. Many patients had not called a physician, but for other reasons, such as getting a small loan, they were subjected to medical examination and a stool specimen sent to the laboratory; it was impossible to find out how many of these persons had been clinically suspected of amebiasis. As to Isospora, no diagnosis of species was made. They found Isospora in 8 carriers among 2,556 patients examined.

High Abdominal Spinal Anesthesia

Dr. Piragibe Nogueira, of the Faculty of Medicine of the University of Sao Paulo, discusses the present situation of high abdomen anesthesia. He believes that there are good indications for spinal anesthesia in selected cases.

Dr. Piragibe's own experience with the high abdomen spinal anesthesia is reported. Until March 1947 its indication was limited to the cases in which the regional anesthesia was thought to be ineffective and the patient showed normal circulation and respiration systems.

Dr. Piragibe mentions his previous papers on the high abdomen spinal anesthesia to call attention to the line of conduct he has adopted since July 1946, viz., to practice it only by the Lemmon process which permits the administration of an initial harmless dosage followed by maintenance doses injected during the course of the operation, considering the muscular tonus of the abdominal wall whose relaxation decreases before the painful sensitivity reappears in the procaine hydrochloride anesthesias.

He discuses the Jones and Sebrechts processes to obtain the high abdomen spinal anesthesia with hypobaric "nupercaine" 1:1,500 and concludes from his own experience that in the Jones process notwithstanding the individualization of the dosages, there is no safety because it is impossible to control the anesthesic level with one dosage only; in the Sebrechts process the gradual application of the dosage which will obtain the desired anesthesia gurantees safety, and Dr. Piragibe has always observed a dosage decrease in comparison with that of the Jones process; however, it was found that the anesthesia period was insufficient.

Studying three series of spinal anesthesia in the high abdomen, he proves, taking in account the causes of the accident, that safety and desirable duration of anesthesia are combined only in the Lemmon technic. Dr. Piragibe has been employing this technic with a 6 per cent procaine hydrochloride solution in the spinal fluid; that solution is clearly hyperbaric.

Dr. Piragibe ends by demonstrating that the Lemmon process permits the Mirizzi's operative cholangiography so valuable in bile duct surgery.

Gastric Cancer

Drs. Francisco J. Nocito and Guillermo F. Cottini from Hospital Alvear of Buenos Aires, Argentina, presented in Rio de Janeiro at the fourth Inter-American Congress of Surgery a study of 213 cases of gastric cancer observed during 1933 to 1947. The number of patients operated on was 190, or 89.2 per cent. Gastric resection was performed on 84, or 39.43 per cent, of the patients. The death rate for gastrectomy was 26.19 per cent. A follow-up of 30 patients showed 8 survivors after more than five years, that is, 26.6 per cent.

Medical Motion Pictures

FILM REVIEWS

Transthoracic Esophageal Diverticulectomy. 16 mm., color, silent, 590 feet (two reels), showing time twenty-four minutes. Prepared in 1948 by and procurable on loan or purchase from Philip Thorek, M.D., 25 East Washington Street, Chicago 2.

This motion picture shows a transthoracic excision of a diverticulum of the lower third of the esophagus. These operations have been made feasible and safe by the development of the antibiotics, by the easy availability of blood for multiple transfusions and by the relatively recent emergence of a school of well trained physician-anesthetists. Formerly infection, shock and respiratory difficulties combined to make the mortality prohibitively high.

The author should omit pointing and gestures in the first part of the film, although such are useful in demonstrating the diverticulum. The color quality is excellent; however, it is obvious that the camera was held by hand. Use of a tripod would have produced a more satisfactory picture. In a few scenes a more advantageous selection of the camera position would have provided a better view of the cavity.

Because the condition is rare, the operation should interest surgeons who do this work; because it demonstrates the ease and safety with which such operations can now be performed, it should contribute greatly to their education.

Schistosomiasis. 16 mm., color, sound, 975 feet (one reel), showing time twenty-seven minutes. Prepared in 1946 by the War Department. Procurable on loan from the Army Surgeon of the Army area in which the request originates.

The film touches on the history and geographic distribution of the three types of schistosomiasis, giving good clinical pictures of infected natives and servicemen, demonstrating by animation the route that the parasites take in the body. There are two places where the film could be improved. In the first blood smear the eosinophils are not clear. The second time this is shown, the eosinophils are well brought out. In the smears of the stool it might be wise to use a pointer to indicate the position of the ova. A diagram of the complete cycle would make the subject clearer for those who are not familiar with schistosomiasis.

The photography, including photomicrography is good. The native scenes in regions where schistosomiasis is endemic are colorful and interesting. The close-up scenes of the snails and cercaria are impressive. Several sequences manifest poor photographic reproduction. The animation and narration are also good. This film is suitable for hospital staff meetings and for medical students. It is not intended for the public.

Precancer Diagnosis of Cervix by Cytology. 16 mm., color, sound, 1,300 feet (one reel), showing time thirty-six minutes. Prepared in 1947 by J. Ernest Ayre, M.D., director, Gyne-Cytology Laboratory, Royal Victoria Hospital, McGill University, Montreal, Canada. Procurable on rental from the Clay-Adams Company, Inc., 44 East Twenty-Third Street, New York 10.

The cytologic study of vaginal smears initiated by Papanicolaou has taken the country by storm. Its popularity in medical and to a still greater extent in nonmedical circles has not been an unmixed blessing. This makes particularly desirable a film for thorough instruction in the various technics involved in the study of smears from the vagina and cervix. Few could equal Dr. Ayre's qualifications for doing just that kind of a job.

The film presents case reports, gross appearance of cervical lesions, the technic of obtaining material, making and staining smears, the microscopic appearance of cytologic details, correlation with histologic observations in biopsies and, finally, interpretation. Much of what is shown bears the imprint of Dr. Ayre's own contributions, especially in the method of collecting cervical material. The difficulties of interpretation of borderline cases have not been sufficiently stressed; the lettering on the chart entitled "Ayre's select technic of cytology" is not clear, and the canceled envelop bearing the name of the film's author may be misinterpreted by some observers. These are indeed minor defects in an otherwise satisfying and didactically effective film. In many scenes the color quality of the film is not good. This appears to be the result of poor reproduction of an otherwise satisfactory original picture. The film gives a thorough review of the methods involved.

Miscellany

MEDICAL CARE IN ETHIOPIA

The World Health Organization Mission in Ethiopia has been operating since Jan. 1, 1947 as a continuation of the health activities of the United Nations Relief and Rehabilitation Administration mission in that country. In March the activities and positions of the mission were regularized by the signing of an agreement between the Interim Commission and the imperial Ethiopian government. Ethopia was among the first countries to ratify the constitution of the World Health Organization.

The health needs of Ethiopia are almost limitless. With not a single indigenous doctor or nurse for a population of about 12,000,000, dependence on foreign aid is essential for some years. There are at present some seventy foreign physicians in the country, of whom forty-two are in Addis Ababa, and about the same number of nurses. A committee on medical education recently made what is considered to be a conservative estimate of the needs of the country and put these at about one thousand two hundred medical assistants, three hundred nurses, two thousand dressers and one thousand two hundred sanitary inspectors: altogether, with other auxiliary workers, about five thousand technically trained persons are required.

In the hospitals elementary equipment is often lacking. A female dresser in one of the World Health Organization's nursing classes, which was shown a film on "Bathing the Patient," commented that "we should like to give care like that to our patients but we do not have a washbasin, pan or pitcher in our ward," and this was confirmed by inspection. Sanitation is another vast problem, but fortunately food is abundant and the diet well balanced.

Faced with these problems, the World Health Organization Mission in the closest collaboration with the vice minister of health and his advisers, decided to concentrate on three main tasks: to give elementary training in nursing and sanitation to dressers and sanitary officers; to assist the municipality of Addis Ababa in sanitation; and to assist the ministry of health in investigating and dealing with epidemics in the outlying provinces. These tasks have tried the small staff—originally two doctors, three nurses and a secretary—to the utmost.

Elementary courses for dressers in four hospitals have been completed and a more advanced course begun at the Menelik Hospital. Eighty-five dressers have now received official certificates as a result of examinations by an independent examining board. Help has been given in establishing courses for dressers at hospitals in outlying provinces, and a manual in Ethiopian for the training of dressers has been produced. All reports show the great relief afforded to the inadequate imported nursing staffs of government and mission hospitals by even the most elementary training of local dressers.

Two elementary courses for sanitary inspectors have been completed. The best candidates from both courses will be selected for more advanced secondary training. Both in the courses for dressers and for sanitary officers, and in schools and at public meetings, much use has been made of motion pictures for demonstration purposes. So far, only the surface of the almost virgin soil of Ethiopian health problems has been scratched. The new grant from the United Nations Relief and Rehabilitation Administration for 1948 should, if the government wishes it, allow these unobtrusive yet essential activities to continue and perhaps expand.—*Chronicle of the World Health Organization,* December 1947.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Application of Federal Food, Drug and Cosmetic Act to Intrastate Sales.—The respondent, a retail druggist in Columbus, Ga., was charged with a violation of Section 301(*k*) of the federal food, drug and cosmetic act of 1938, which section prohibits the performance of any act with respect to a drug "if such act is done while such article is held for sale after shipment in interstate commerce and results in such article being misbranded." The respondent was convicted in the trial court but obtained a reversal of that conviction by the circuit court of appeals *(Sullivan v. United States,* 161 F. (2d) 629; *J.A.M.A.* 135:53 (Sept. 6) 1947), so the government appealed to the Supreme Court of the United States.

A laboratory had shipped in interstate commerce from Chicago to a consignee at Atlanta, Ga., a number of bottles, each containing one thousand sulfathiazole tablets. These bottles had labels affixed to them, which, as required by section 502(*f*) paragraphs 1 and 2 of the act, set out adequate directions for the use of the tablets and adequate warnings to protect ultimate consumers from dangers incident to this use. The respondent bought one of these properly labeled bottles of sulfathiazole tablets from the Atlanta consignee, transferred it to his Columbus, Ga., drugstore, and there held the tablets for resale. On two separate occasions twelve tablets were removed from the properly labeled and branded bottle, placed in pill boxes and sold to customers. These boxes were labeled "sulfathiazole." They did not contain the statutorily required adequate directions for use or warnings of danger. The circuit court of appeals, said the Supreme Court, interpreted the statutory language of section 301(*k*) "while such article is held for sale after shipment in interstate commerce" as though Congress had said "while such article is held for sale by a person who had himself received it by way of a shipment in interstate commerce."

One reason given by the circuit court for refraining from construing the act as applicable to articles misbranded while held for retail sale, even though the articles had previously been shipped in interstate commerce, was its opinion that such a construction would raise grave doubts as to the act's constitutionality. A restrictive interpretation should not be given a statute merely because Congress has chosen to depart from custom or because giving effect to the express language employed by Congress might require a court to face a constitutional question, said the Supreme Court. When it is reasonably plain that Congress meant its act to prohibit certain conduct, the foregoing reason does not justify a distortion of the congressional purpose, even if the clearly correct purpose makes definite deviations from custom or leads inevitably to a holding of constitutional invalidity. Although criminal statutes must be so precise and unambiguous that the ordinary person can know how to avoid unlawful conduct, they should be given their fair meaning in accord with the evident intent of Congress.

Another consideration that moved the circuit court of appeals to give the statute a narrow construction was its belief that the holding in this case with reference to misbranding of drugs by a retail druggist would necessarily apply also to "similar retail sales of foods, devices and cosmetics, for all these," the court said, "are equally covered by these provisions of the act." The scope of the offense which Congress defined, said the Supreme Court, is not to be judicially narrowed by envisioning extreme possible applications of its different misbranding provisions. There will be opportunity enough to consider such contingencies should they ever arise. Furthermore, continued the Supreme Court, the administrator of the act is given rather broad discretion; for example, he is given extensive authority to issue regulations exempting from the labeling requirements many articles that otherwise would fall within this portion of the act.

When we seek the meaning of section 301(*k*) from its language, said the Supreme Court, we find that the offense which it creates and which is here charged requires the doing of some act with respect to a drug (1) which results in its being misbranded (2) while the article is held for sale "after shipment in interstate commerce." It would require great ingenuity to discover ambiguity in the additional requirement of section 301(*k*) that the misbranding occur "while such article is held for sale after shipment in interstate commerce." The words accurately describe the respondent's conduct in this instance. He held the drugs for sale after they had been shipped in interstate commerce from Chicago to Atlanta, Ga. It is true that the respondent bought them nine months after the interstate shipment had been completed by their delivery to another consignee. But the language used by Congress broadly and unqualifiedly prohibits misbranding articles held for sale after shipment in interstate commerce, without regard to how long after the shipment the misbranding occurred, how many intrastate sales had interveded or who had received the articles at the end of the interstate shipment.

Finally, it was contended that the act as we have construed it is beyond any authority granted Congress by the Constitution and that it invades the power of the states. A similar challenge was made against the Pure Food and Drug Act of 1906 and was rejected in *McDermott v. State of Wisconsin,* 228 U. S. 115. That act, said the Supreme Court, did not contain section 301(*k*) but it did prohibit misbranding and authorize seizure of misbranded articles after they were shipped from one state to another, as long as they remained "unsold." The reasons given for the McDermott holding, concluded the Supreme Court, are equally applicable and persuasive here even though in the McDermott case the labels involved were on the original containers but here the labels are required to be put on other than the original containers--the boxes to which the tablets were transferred, and even though in the McDermott case the possessor of the labeled cans held for sale had himself received them by way of an interstate sale and shipment but here, while the petitioner had received the sulfathiazole by way of an intrastate sale and shipment, he bought it from a wholesaler who had received it as the direct consignee of an interstate shipment. Accordingly the decision of the circuit court of appeals was reversed and the respondent's conviction sustained.--*United States v. Sullivan, 68 S. Ct. 331 (1948).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Public Health, New York

38:1-144 (Jan.) 1948

Child Feeding in Europe Under International Children's Emergency Fund. Martha M. Eliot. -p. 1.
Prospects of Improving Food Supply of Orient. R.R. Williams. -p. 8.
Analysis of Wilson-Worcester Method for Determining Median Effective Dose of Pertussis Vaccine. Margaret Pittman and J.E. Lieberman. -p. 15.
Abridged Table of Probits for Use in Graphic Solution of Dosage-Effect Curve. E.S. Weiss. -p. 22.
Symposium on Preservice and Inservice Preparation in Health of School Personnel: Role of Department of Education and Department of Health in Inservice Preparation of Classroom Teachers, School Administrators, School Nurses and School Physicians. L.E. Burney and B. H. Watt. -p. 25.
Preservice Preparation of Teachers and School Administrators. Elizabeth Kelley, Bernice Moss and Dorothy B. Nyswander. -p. 30.
Contribution of Medical School and School of Public Health. I.V. Hiscock. -p. 36.
Contribution of School of Nursing and Graduate Course in Public Health Nursing. Ruth Freeman. -p. 39.
*Frozen Precooked Foods. B.E. Proctor and A.W. Phillips. -p. 44.
*Dog, Fox and Cattle Rabies in New York State: Evaluation of Vaccination in Dogs. R.F. Korns and A. Zeissig. -p. 50.
Death, Defect and Disability in Prenatal Life: Epidemiologic Consideration. J.E. Gordon and T.H. Ingalls. -p. 66.
Community Health Services for Children in Eight Selected States. C.L. Williams Jr., J.P. Hubbard and Katherine Bain. -p. 75.

Frozen Precooked Foods.—Proctor and Phillips indicate that within the past decade a new and almost startling array of commercially prepared cooked food has made its appearance in frozen form. The most recent type, frozen precooked foods, was unknown before the war but now may be found in many markets. Frequently these frozen precooked foods have been prepared or manufactured by novices in the field of commercial food packing and processing. In the belief that some information could be obtained relating to the public health aspects of these new products, a microbiologic survey was made of all the commercially prepared frozen precooked foods available in New England markets. Several technics have been developed to aid in the identification of micro-organisms. One of these is a surface-plating technic used in conjunction with impression slides in order to identify large numbers of bacterial colonies more rapidly. Another development is a device to inoculate large numbers of bacteriologic culture tubes simultaneously. Those concerned with frozen precooked foods should set up microbiologic standards for each product and plant control procedures to insure that these standards are maintained. A number of the more experienced companies in this field did this before their products ever went on the market. Some producers have never considered this phase, know nothing about the microbiologic quality of their products and will continue to remain in ignorance unless standards are established for their guidance or control.

Rabies: Vaccination in Dogs.—Korns and Zeissig review the problem of rabies in the state of New York and direct attention to the introduction and spread of the disease in foxes and cattle with a concomitant sharp decline in canine rabies. Thus, during 1946 rabies was reported in 377 dogs, 308 foxes and 440 cows, while during the first nine months of 1947 the disease was reported in only 40 dogs but in 218 foxes and 173 cows. Evidence has been presented that indicates the value of prophylactic canine antirabies vaccination. In ten counties where 78 per cent of the enumerated dogs were vaccinated, the subsequent rabies attack rate in nonvaccinated dogs was 15.8 times the rate in vaccinated dogs observed during the same period and in the same area. Based on experience gained in sponsoring twenty-four county control programs, general recommendations are presented. The authors think that emphasis should be placed on the benefits to be derived from the program by the individual dog and his owner rather than on the legal necessity of complying with the regulations. In the state of New York rabies in cattle seems clearly to have been due to bites from rabid foxes. Control of the fox problem has been attempted by the creation, through trapping, of a zone of fox scarcity surrounding the infected area.

Archives of Surgery, Chicago

56:1-124 (Jan.) 1948

Decortication of Lung in Treatment of Tuberculous Empyema. C.R. Lam. -p. 1.
Anesthesia in Thoracic Surgery. N.E. Lenahan. p. 14.
Transgastric Removal of Large Solid Bodies Impacted in Lower Part of Esophagus. W.D. Gatch and W.F. Molt. -p. 21.
Surgical Treatment of Perforation of Esophagus. J.M. Dorsey. -p. 24.
*Resection of Esophagus for Persistent Stricture. C.B. Puestow and S.J. Chess. -p. 34.
Surgical Management of Irreducible Intussusception. C.W. McLaughlin, Jr. -p. 48.
Congenital Duodenal Obstruction (Intrinsic Obstruction). C.D. Benson and G.C. Penberthy. -p. 58.
Meckel's Diverticulum as Acute Surgical Emergency. C.H. Maguire. -p. 65.
Polyposis of Colon. C. McG. Gardner. -p. 75.
Obstruction Due to Volvulus of Colon. R.K. Gilchrist. -p. 79.
*Carcinoma of Rectum and Rectosigmoid. Statistical Analysis of 844 Cases. R. A. Thomas, P. S. Kline and L. Seed.--p. 92.
*One Hundred and Thirty-Seven Consecutive Combined Abdominoperineal Resections Without Mortality. T.E. Jones, J.R. Robinson and G.B. Meads. -p. 109.
Perforated Appendix in Children. I. Schulz. -p. 117.

Resection of Esophagus for Persistent Stricture.--Puestow and Chess point out that in stricture of the esophagus various types of procedures have been designed to reestablish the connection between the mouth and the stomach so that food can be chewed and swallowed. They have made a few modifications in the technic of Sweet. By removal of the seventh rib and division of the sixth and fifth ribs, they have found the entire stomach to be accessible and the gastroesophageal anastomosis to be considerably simplified. It has also been their policy to insert a Rawson-Abbott tube through the anastomosis. The proximal end is passed in a retrograde manner up through the esophageal stump to be retrieved by the anesthetist. The distal end is then passed into the stomach, with the extension for feeding well down into the duodenum. Since the vagus nerves are divided in this operation, the stomach becomes greatly distended if constant gastric suction is

not used postoperatively. Distention may produce undue tension and necrosis at the suture line, and it also compresses the left lung. By constant aspiration and by the administration of duodenal feedings, the stomach can be kept deflated until healing takes place. At the same time the nutritional status of the patient can be maintained. The authors report 4 cases of intractable stricture of the esophagus with treatment in the described manner. The operation produced satisfactory results in 3 patients; 1 patient died. The authors say that although this procedure may carry with it a higher mortality than more conservative methods of therapy, the end result makes it justifiable as it restores the patient's normal eating habits and frequently overcomes abnormal psychic states. Intensive preoperative and postoperative care is essential for a successful outcome.

Carcinoma of Rectum and Rectosigmoid.--This statistical study by Thomas, Kline and Seed covers all patients with carcinoma of the rectum and rectosigmoid admitted to the Veterans Administration Hospital, Hines, Ill., from 1931 to 1946. There was a total of 844 male patients. The first symptom may be a severe attack of prolapsed thrombosed hemorrhoids. Loss of weight and frequent bowel movements were also frequent symptoms. A number of miscellaneous complaints appeared as the first symptom, such as rectal discharge, fistula in ano, rectal abscess, protrusion, dysuria, rectovesical fistula, weakness, backache and sciatica and the symptoms of metastasis to the liver, lung, groin, brain and jaw. With regard to operability and mortality, the patients have been divided into 2 groups. This division was made because of doubling of the resectability rate, which began in 1940 and was accompanied with a sharp reduction in mortality for all procedures. Several factors were responsible for this improvement. Most important were the better preoperative preparation, with special reference to the maintenance of the fluid, electrolyte and protein balance, the more liberal use of blood and plasma and the use of sulfonamide drugs and penicillin to control infections. During the past ten years, the majority of surgeons in this country have abandoned the two stage resection by colostomy and perineal excision for the one stage combined abdominoperineal resection. Comparing the survival rates after irradiation, after colostomy and after resection, the authors conclude that a carcinoma of the rectum or rectosigmoid should be resected.

Combined Abdominoperineal Resections Without Mortality.--Jones and his associates studied 137 combined abdominoperineal resections of the rectum performed in the Cleveland Clinic Hospital from 1941 to 1943 without operative mortality. They believe that their report will contribute to the growing weight of evidence in favor of the one stage combined abdominoperineal resection as contrasted with operations of lesser magnitude. A thorough abdominal palpation, inspection of the anus, digital examination of the rectum and sigmoidoscopic examination of the rectosigmoid and the lower part of the sigmoid colon made possible a correct clinical diagnosis in 100 per cent of the cases studied. All the lesions were within easy reach of the sigmoidoscope, and 70 per cent were within easy reach of the finger. Roentgenologic study as a diagnostic procedure in carcinoma of the rectum is of little value and may be misleading. For description of the technic of the operation the authors refer to an earlier report. The only change that has been made is the division of the bowel between Cope clamps instead of between Payr clamps and the use of stockinet caps instead of the rubber dam tied over the cut ends of the bowel. The most troublesome complication was infection of the urinary tract and retention of urine. The reasons for this complication seem to be (1) the disturbance of the innervation of the bladder by the removal of the rectum, (2) the use of retention catheter for the first twenty-four hours postoperatively to prevent overdistention of the bladder and (3) the fact that the posterior wall of the bladder has nothing left to push against when contracting because of the removal of the rectum. Most patients began voiding in adequate amounts nine days postoperatively. Residual urine to the amount of over 100 cc. was common for several weeks postoperatively.

Journal of Aviation Medicine, St. Paul

18:515-628 (Dec.) 1947

Effects of Anoxia on Retinal Vessels and Retinal Arterial Pressure. J. Duguet, P. Dumont and Jean-Pierre Bailliart.—p. 516.
Psychologic Requirements of Airplane Pilot. J. C. Flanagan.--p. 521.
Visual Standards and Flight Performance. M. S. Viteles.—p. 528.
Human Tolerance to Acceleration in Pilot Ejection. W. H. Ames, H. M. Sweeney and H. E. Savely.—p. 548.
Tolerance to Vertical Acceleration Required for Seat Ejection. D. T. Watts, F. S. Wendelson, H. N. Hunter and others.--p. 554.
*Appraisal of Intermittent Pressure Breathing as Method of Increasing Altitude Tolerance. M. Eckman, Beatrice Barach, C. Fox and others.—p. 565.
Studies on Asphyxia: II. Effects of Carbon Dioxide Inhalation on Anoxic Animal. J. H. Ivy, F. S. Grodins, H. F. Adler and F. E. Snapp.—p. 577.
Food Preferences on Combat Flights. D. B. Dill.—p. 590.
Distance Discrimination: V. Effect of Motion and Distance of Targets on Monocular and Binocular Distance Discrimination. M. J. Hirsch and F. W. Weymouth.—p. 594.

Pressure Breathing for Increasing Altitude Tolerance.--Studies described by Eckman and his collaborators revealed that the rise in oxygen saturation during intermittent pressure breathing with air at 16,000 and 17,000 feet (4876.8 and 5181.6 meters) was not accompanied by an increase in mental efficiency, as measured by the Hecht Visual Discrimination Test and the Arithmetical Problem Tests, in the majority of tested subjects. The arterial oxygen saturation in itself is not a dependable criterion of the efficiency of the individual but must be evaluated in the light of the carbon dioxide pressure and the pH of arterial blood. When equivalent mean pressures are compared, intermittent pressure breathing (as obtained by the pneumolator) is less comfortable than continuous pressure breathing. The high incidence of clinical symptoms of alkalosis with intermittent pressure breathing may be dangerous to the aviator. The appraisal of the data thus far reported points to the conclusion that continuous pressure breathing is more dependable and safer than intermittent pressure breathing.

Journal of Clin. Endocrinology, Springfield, Ill.

7:781-874 (Dec.) 1947

Spermatogenesis in a "Pan-Hypopituitary" Eunuchoid, as Result of Testosterone Therapy. L. W. Kinsell.—p. 781.
Endocrine Disorders Associated with Cushing's Syndrome and Virilism: Report of Unusual Case. A. C. Crooke.—p. 787.
Rapid Method for Determination of Total Urinary 17-Ketosteroids. I. J. Drekter, S. Pearson, E. Bartczak and T. H. McGavack.—p. 795.
*Specific Renal Functions in Hyperthyroidism and Myxedema: Effects of Treatment. A. C. Corcoran and I. H. Page.—p. 801.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

9:145-224 (July) 1947

Electrocardiographic Study of Typhoid Myocarditis. F. Mainzer. -p. 145.
Heart-Vector and Leads. Part II. H.C. Burger and J.B. Van Milaan. -p. 154.
Idiopathic Cardiac Hypertrophy. D.G. Vulliamy. -p. 161.
Heart in Scleroderma. T. East and S. Oram. -p. 167.
Testicular Teratoma with Extensive Intracardiac Metastases. R.W.E. Watts. -p. 175.
*Ergotamine and Apparent Coronary Insufficiency. G. Biörck. -p. 181
*Coarctation of Aorta. M. Campbell and S. Suzman. -p. 185.
Myocardial Tuberculosis with Paroxysmal Ventricular Tachycardia. R. Schnitzer. -p. 213.

Ergotamine and Apparent Coronary Insufficiency.--Biörck says that since 1942 hypoxemia tests have been done at his clinic as a routine in the clinical examination of patients complaining of symptoms of coronary insufficiency. It was established that the test not only discloses latent coronary insufficiency in many patients with suspected organic coronary heart disease but produced apparently pathologic electrocardiographic tracings in patients with symptoms of cardiac neurosis. The cardiographic observations in the hypoxemia test are usually ascribed to the induced anoxemia or inschemia of the myocardium. The degree of myocardial anoxemia is due to a number of factors, such as ventilation, arterial oxygen tension and arterial *p*H. Other investigators gained the impression that hormonal influences, reflex mechanisms and, possibly, intermediary tissue metabolism should be considered. This study deals with the influence of the sympathetic nervous system. In 10 patients with positive hypoxemia tests in which it was questioned whether the outcome of the test might not be due to functional factors rather than to coronary sclerosis or myocardial disease, a new hypoxemia test was perfromed after the injection of ergotamine 0.5 mg. In 9 patients the test after use of ergotamine was negative. This points to an effect of the sympathetic nervous system in such cases.

Coarctation of Aorta.--Campbell and Suzman point out that the collateral circulation in the chest wall may be the most striking feature of coarctation of the aorta. However, they think that coarctation will often pass unrecognized if a striking collateral circulation is expected to be self evident. It will be diagnosed if the femoral pulse of the patient is felt for and the blood pressure is taken in the legs in every instance of high blood pressure or basal systolic or diastolic murmurs, or undue pulsation in the neck, when this is without an obvious cause. The collateral circulation can be demonstrated in many patients in in whom it is not evident, or it can be made more obvious in others, if the patient is made to stoop forward with his arms hanging down vertically while his back is examined in a good light. This is because the greatly dilated subclavian artery is compressed between the clavicle and the first rib: bending forward opens up the costoclavicular space and thus releases this pressure on the subclavian artery. Any movement that increases the costoclavicular space may elicit this sign. A high pressure in the arms with a low pressure and a poor femoral pulse, or the demonstration of a collateral circulation are pathognomonic of coarctation of the aorta. They are even more important than notching of the ribs, not only because roentgenograms are not always available, but because these signs are present at an earlier age. The rise of blood pressure, the collateral circulation and the notching of the ribs develop as a rule in those between the ages of 5 and 15 years. The rise of blood pressure and the increase in the collateral circulation occur during the period of rapid growth, probably because the stenosis of the aorta does not increase in cross section (or increases relatively little) with the growth of the rest of the aorta; hence, the relative obstruction becomes greater. More than half the patients had little or no clinical or radiologic enlargement of the heart. Enlargement was more likely when there was an aortic diastolic murmur (5 of 15 cases), though even then it was sometimes slight. The average expectation of life of those with symptoms before adult life is probably no more than thirty years, so that cure by operation has something to offer. Where the diagnosis is made for the first time in adult life, and especially in those without symptoms, the outlook is relatively good.

Nordisk Medicin, Gothenburg

36:2367-2414 (Nov. 28) 1947. **Partial Index**

Recent Developments in Serodiagnosis of Syphilis: I. Standardization of Method and Technic with Cardiolipin Antigen.J.C. Hume and Thorsten Guthe. -p. 2367.
*After-Examination of 103 Cases of Cancer of Breast with Respect to Evaluation of Preoperative and Postoperative Roentgen Treatment. M. Andreassen. -p. 2373.
Influence of Diet on Urea Clearance. H. O. Bang and A. Nielsen. -p. 2376.
Triorthocresyl Phosphate Polyneuritis. Report on 75 Cases. O. W. v. Nandelstadh. -p. 2379.
Ethylene Glycol and Methanol Intoxication After Drinking Anti-Freeze Mixture. Five Cases. H. Jensen. -p. 2391.
Essential Hematuria. E. Karli-Jørgensen. -p. 2395.
Giant Cell Tumors with Unusual Localization. B. C. Brynjulfsen and G. Vestby. -p. 2397.
*Intestinal Atresia. B. C. Brynjulfsen. -p. 2401.
Luxation of Peroneus Tendons. R. Romanus. -p. 2407.
Value of Pandy's and Nonne s Tests for Protein in Cerebrospinal Fluid. R. Eeg-Olofsson. -p. 2410.

Preoperative and Postoperative Roentgen Treatment.--Radical operation was done in 123 cases of cancer of the breast with postoperative roentgen treatment and in 53 cases with preoperative roentgen treatment as well. Ninety-nine patients were examined at least five years after the operation; 4 had died from intercurrent disease. In 38 patients there was no recurrence, 61 had recurrence. Of the 29 patients without axillary metastases, 24 had no recurrence; of the 70 with axillary metastases, 14 were free from recurrence. Fifteen per cent of the recurrences appeared after three years. In 21 per cent of the recurrences the supraclavicular nodes were invaded. Extension of the operation to include extirpation of the supraclavicular nodes is advised. No better effect was seen from preoperative and postoperative roentgen treatment than from postoperative roentgen treatment alone.

Intestinal Atresia.--Brynjulfsen discusses atresia in the small and large intestine and reports 2 cases localized to the duodenum, both fatal; a case of multiple occurrence, also fatal, and a case of atresia of the small intestine with recovery after anastomosis, believed to be the ninth case of its kind with recovery to be published. To 1941, 20 cases of duodenal atresia with recovery had been published (Windfeld). Treatment is operative. With atresia in jejunum and ileum the method of choice is side to side anastomosis. The author cautions against jejunostomy and ileostomy. Three cases of atresia ani are described, 1 with recovery, 1 with incontinence and 1 with the formation of stricture.

Report of Case Showing Congenital Defects, Short Stature, Retarded Sexual Development and No Urinary Gonadotropins. G. B. Dorff, D. H. Appelman and A. Liveson.—p. 807.
Treatment of Thyrotoxicosis with Aminothiazole--Results in 23 Cases. Jeannette S. McConnell, J. W. Frost, R. W. Wilbur and E. Rose.—p. 812.
Iodine Lack Theory and Endemic Goiter. H. Ucko.—p. 820.

Renal Functions in Hyperthyroidism and Myxedema.—In studies on the specific renal functions in 2 patients with hyperthyroidism, 1 of whom was treated by subtotal thyroidectomy and the other with thiouracil, Corcoran and Page found that this condition is not associated with a significant renal vasodilation or with an increase in tubular secretory capacity for iodopyracet injection ("diodrast" N.N.R.) proportionate to the elevation of the basal metabolic rate. Before treatment, 2 patients with myxedema treated had reductions of renal blood flow, glomerular filtration and tubular secretory capacity. Treatment with desiccated thyroid resulted in restoration of these functions toward normal. The changes thus induced in renal blood flow and glomerular filtration rate reflect a decrease in afferent vascular resistance. The depression of tubular secretory capacity in myxedema is excessive in relation to the reduction of basal metabolic rate in this condition and to the changes observed in this function during hyperthyroidism. It is suggested that the renal functional depression present in myxedema is in part a reflection of depression of anterior hypophysial function rather than a direct renal lack of thyroidal hormone.

Kentucky Medical Journal, Bowling Green

46:1-34 (Jan.) 1948

Hematuria. H. E. Martin. -p. 4.
Conversion Hysteria. J. H. Rompf. -p. 8.
Knock Knee and Bowleg. E. E. Myers. -p. 14.
Rocky Mountain Spotted Fever and Related Rickettsial Diseases. R. L. Cash. -p. 19.
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Mechanisms Underlying Pulmonary and Cardiac Complications of Electrically Induced Convulsions. M. D. Altschule and K. J. Tillotson. -p. 113.
Angiocardiography: Its Use in Diagnosis of Patent Ductus Arteriosus. R. A. Furman. -p. 116.
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*Control of Acute Respiratory Infections in Industry. G. F. Wilkins. -p. 137.
*Course of Rheumatoid Arthritis in Patien s Receiving Simple Medical and Orthopedic Measures. C. L. Short and W. Bauer. -p. 142.
Anesthesia in Surgical Treatment of Bronchiectasis. L. H. Mousel. -p. 148.
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Control of Respiratory Infections in Industry.—Wilkins thinks that the time-honored advice given to a patient with an acute respiratory infection to "go to bed for twenty-four or forty-eight hours" is undoubtedly of merit. Although in the absence of fever it is questionable whether such a procedure shortens the duration of the infection, it serves to isolate the patient and thus to prevent spread by contact. The observance of general hygienic measures, such as the use of disposable tissues for coughing, sneezing and nose blowing, and cleanliness of the hands, requires no comment. Education may be accomplished by the use of posters, pamphlets and articles in company organs in which personal hygiene, proper clothing, nutrition, exercise and rest are stressed. To date no scientific evidence has been presented that additional vitamins have any immunologic value in the presence of a diet that supplies the minimal daily requirements of these accessory food factors. Experience with cold vaccines has convinced the author that the method is of no value as a preventive measure against colds. The Subcommittee for the Evaluation of Methods to Control Airborne Infections concluded that the general use of ultraviolet irradiation or disinfectant vapors in schools, barracks and in industrial environments is not justified at the present time. In a recent outbreak of influenza, definitely identified as due to virus A, vaccination of 10,000 university students was accomplished. Satisfactory serum antibody levels against virus A were obtained, but no protection was afforded.

Rheumatoid Arthritis.—Short and Bauer review observations on 250 unselected patients with rheumatoid arthritis who received simple medical and orthopedic measures and who have been under observation for an average period of ten years. Over 50 per cent evidenced definite improvement when last seen, and 15 per cent were considered in remission. The authors hope that additional series will be collected and published for comparison with this one and with results attained by special forms of therapy. No selection should be used and, if possible, the patients should represent consecutive admissions. In this way the series will not be limited to certain types or stages of the disease. The follow-up period should be spread over years rather than months to allow for the usual relapses and remissions. When the time has come for the evaluation of results, certain factors of prognostic implication should be taken into consideration. These include the age and sex of patients, the duration of the disease, the type and extent of involvement and the activity and severity of the process. It is desirable that a uniform scheme for the evaluation of therapeutic results eventually be adopted. The results in the present series indicate that about 50 per cent of patients will ultimately improve. This percentage may well change in the course of time. The percentage obtained at present is below "the inevitable 75 per cent improvement" usually mentioned in estimates on the prognosis in rheumatoid arthritis.

Book Notices

Rhinoplasty and Restoration of Facial Contour with Special Reference to Trauma. By Jacques W. Maliniac, M.D., Clinical Professor, Plastic Reparative Surgery, New York Polyclinic Medical School and Hospital, New York. Cloth. Price, $7.50. Pp. 327, with 214 illustrations. F. A. Davis Company, 1914-16 Cherry St., Philadelphia 3, 1947.

In the preface the author states "I have not sought to restate facts which can be found in any standard textbook but rather to furnish practical data in which much of the current literature is deficient." In chapter X he states "This chapter will stress those points which in the author's opinion need clarification and improvement." Later in the same chapter he states "As throughout this book, details of accepted procedures which have been repeatedly described elsewhere are omitted here. Emphasis is laid on controversial points and methods which personal experience has found of particular value."

Thus the reader who is seeking a textbook giving details on the performance of routine rhinoplasties will be disappointed. The emphasis in this book is on trauma, both in its acute stage and in its late effects, the minimization of deformity and the correction of that which has already developed. In the chapter on anatomy and development the anatomy of the bony framework and external nose is presented, with emphasis on the relation of anatomy to deformity and external contour. The necessity for a thorough and accurate diagnosis prior to the treatment of acute injury and the technic of examination and evaluation of this injury are stressed. Nasal fractures with associated injury to the soft tissue and cartilaginous displacement are discussed in fullest detail, as is the treatment of each displacement or element in the deformity.

A chapter on skin grafts, flaps and supporting grafts lists the various types of grafts to be thought of and utilized in making a repair. It does not describe the detailed technic for using these grafts or performing the operations but does give good advice in helping the reader to select the procedure of choice.

The relationship of septal malformation to external deformity is well presented. The discussion of nasal asymmetries, associated oversized deformities and traumatic nasal loss again does not give detailed technics but rather lists the possibilities for repair and gives the author's preferred technic. This portion of the book is written with far less emphasis than is the section on treatment of acute trauma.

There are a number of inaccuracies in the recommendations for the use of sulfonamide drugs, penicillin and tetanus toxoid. The reader should not let such minor discrepancies prejudice him against the valuable portions of the book.

Kurzes Handbuch der Ohrenheilkunde. Von Professor Dr. Hermann Marx. Second edition. Boards. Price, 48.50 marks. Pp. 888, with 499 illustrations. Gustav Fischer, Villenz 2, Jena, Deutschland, Russ. Zone, 1947.

This short handbook is in its second edition and is wholly devoted to the diseases of the ear. It is well printed on paper of fine quality with many of its illustrations in color. The author considers his subject in great detail; his statements are authoritative. Considering Germany's state during and since the last war, this text is a tribute to the courage and zeal of the author. Of course, and with all this in mind, there are deficiencies. These relate to the inability of German workers to keep abreast of recent advances, especially in American medicine. For this reason the treatment of a number of subjects is necessarily scanty and behind the times. For instance, our notions about and our treatment of aural vertigo of the Ménière's syndrome type, as well as the tremendous impact of antibiotic therapy on the surgery and treatment of suppurations of the temporal bone and their complications, are not reflected in these pages. Penicillin is not even mentioned in the index. The discussion of fenestration technic in otosclerosis is heavily weighted in favor of European investigators and thus overlooks the high degree of skill and success with which these procedures are carried out in this country by Lempert and others whom he has influenced. Nevertheless the sober student of otology ought to possess and prize this work as a fine and almost indispensable guide to the background of an art and practice which has changed remarkably in the last few years.

Hypnotherapy: A Survey of the Literature. By Margaret Brenman Ph.D., Director of the Division of Psychology, the Menninger Foundation, Topeka, Kan. and Merton M. Gill, M.D., Associate Psychiatrist, Assistant Director, Department of Research, the Menninger Foundation. With Appended Case Reports and an Experimental Study. The Menninger Foundation Monograph Series No. 5. Cloth. Price, $4.50. Pp. 276. International Universities Press, 227 W. 13th St., New York 11, 1947.

One half century after therapeutic hypnosis was discarded by Freud, a revival of interest has occurred. The authors of this interesting and stimulating book review the literature and bring up to date the theories, indications and applicability of hypnotic procedures in psychotherapy. The volume is divided into three sections. The first portion is designed to clarify present knowledge by a survey of the literature. The second and most interesting section presents four case studies, previously published in various journals, which clearly demonstrate the methods of investigation. At the beginning of therapy free association while under hypnosis was utilized. Then the authors worked with spontaneous dreams, dreams induced by suggestion when resistance appeared or when a clearer statement of the material was desired. In addition to free association and dreams the therapists attempted to force the recall of forgotten memories. Toward the end of therapy technics under hypnosis to induce regression played a significant role. They explored specific trends by reviving episodes which the history indicated were closest to the repressed content. The patient was regressed to this episode and hitherto repressed material was explored. Repression seemed to yield most readily to hypnosis. Other defense mechanisms could also be analyzed under hypnosis as in the waking state. To counteract anxiety, which at times made its appearance during the release of repressed material, direct supportive suggestion was used. The third section deals with the possible uses of hypnosis in psychologic investigation. This book is a valuable contribution to the therapeutic technic in psychiatry. Hypnosis is not in itself therapeutic. The skill of the therapists in the utilization of the transference and dealing with the ventilated material are of paramount significance.

The Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities. By Philip Lewin, M.D., F.A.C.S., Associate Professor of Bone and Joint Surgery, and Acting Head of Department, Northwestern University Medical School, Chicago. Line Drawings by Harold Laufman, M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School. Third edition. Cloth. Price, $11. Pp. 847, with 389 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1947.

In this third edition the author has added measurably to his already highly comprehensive work. There is a new section of considerable length on the military aspect of the foot based on such facts and experiences as were collected during the last war. While the traumatic aspect of foot ailments is given extended consideration, it does not curtail a thorough and comprehensive treatment of other conditions such as the static and inflammatory ailments. Furthermore, subjects that are so easily overlooked in textbooks because they are presumably insignificant, such as infections and abnormalities of the toenail, foot hygiene, chilblain and frostbite, are thoroughly discussed and are a welcome addition to the surgeon who may be looking for real advice on the minor ailments of the foot and may find the usual textbook disappointing. The book is written with the same thoroughness that characterized the earlier editions.

Disfunciones motoras del estomago. Por el Doctor E. Arias Vallejo. Prólogo del Profesor E. Oliver Pascual. Paper. Price, 35 pesetas. Pp. 155, with 66 illustrations. Revista española de las enfermedades del aparato digestivo y de la nutricion, Cava Baja 11, Madrid, 1947.

Arias Vallejo has made a particular study of those cases in which the stomach fails to empty properly, and he has covered the literature fairly extensively. Each chapter has a bibliography appended. The first chapter deals with the physiology of gastric emptying. Following this there are chapters on stenosis near the pylorus, duodenal stenoses below the papilla, spasm of the pylorus, weakness of the gastric walls, gastric ptosis, the slow emptying of the stomach in some diseases of the small intestine; acute dilatation of the stomach, and the emptying of the stomach after operations on this organ. Few persons realize that in some cases of diarrhea the stomach empties slowly, perhaps because of irritation of the small bowel. This is a creditable piece of work and all Spanish-speaking physicians can find a good deal of value in the volume.

Industrial Health Engineering. By Allen D. Brandt, B.S., M.S., Sc.D., Industrial Hygiene Engineer, Bethlehem Steel Co., Bethlehem, Penn. Cloth. Price, $6. Pp. 395, with 167 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W. C. 2, 1947.

This book is described as the first complete handbook on industrial atmospheric contaminants and their control. Presumably, this statement refers to literature available to engineers. The material is especially designed for that profession and will appeal only to those physicians who have qualified as industrial hygienists or who are called on to install, administer or supervise measures for the control of occupational hazards.

Plague: Laennec (1782-1826) Inventor of the Stethescope and Father of Modern Medicine. By Arthur N. Foxe, M.D. Second edition. Cloth. Price, $2.50. Pp. 122, with 2 portraits. The Hobson Book Press, 52 Vanderbilt Ave., New York 17, 1947.

According to the author's brief preface, this volume is the second edition of the book whose first edition (1930) was limited to "six copies." It seems questionable whether everyone would agree with the author that his medical hero is the "father of modern medicine," as stated in the title. Whereas the best biographic history should be written from the point of view of the times in which the person lived, one can certainly affirm that this volume is so written; for the book is replete with philosophic references to the turbulence in France during the student days and professional activities of Rene Laennec. To cite an example: "And his (Carrier's) people had objected violently that children of the nobles would eat tarts that rightfully were only for their own. Later when men tired of killing, looked about and could see only error where before they had only seen right, it was on Carrier that the brutal acts of everyone were to be heaped" (p. 22). More in line with the subject of his biography is the evaluation of the teachers of Laennec, where the author writes: "This man had charm and his words flowed smoothly, but to what depth? This man shouted his students to submission but his shouting concealed a narrowness and weakness of outlook. This man spoke calmly, openly, confidently, but no igniting demon even slept within him" (p. 71). Of this sort of material there seems to be a surfeit. Laennec's brief life (he died at 45), with its psychic ups and downs, runs as a thin thread through a heavy matrix of philosophic considerations, so much so that one finds as much biographic material on page 151 of Camac's "Epoch-making Contributions" as in the first seventy-one pages of the present book, even though one probably will find nowhere else so impressive an account of the poverty of Laennec and his alternate periods of happiness and depressions. The final months and days of Laennec succumbing to pulmonary tuberculosis are particularly well and graphically portrayed by Dr. Foxe. In spite of too much irrelevant material the book makes interesting reading of this great discoverer and can be easily read in an afternoon.

Clinical Neuro-Ophthalmology. By Frank B. Walsh, M.D., F.R.C.S., Associate Professor of Ophthalmology, Johns Hopkins University, Baltimore. Cloth. Price, $15. Pp. 1532, with 384 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1947.

English-speaking ophthalmologists and neurologists have been waiting a long time for this book. Previous texts had the shortcomings of being either too brief and incomplete or in a foreign language, particularly German. If there is anything missing, pertinent to the title of this excellent work, the reviewer has been unable to uncover it. It is a veritable encyclopedia of neuro-ophthalmology in one volume and represents a wealth of painstaking and accurate work on the anatomy, physiology, pathology, signs, symptoms and treatment of all neurologic disorders affecting the eyes. The author has had the privilege of close association for many years with various departments, notably neurologic and neurosurgical, of the Johns Hopkins and Baltimore City hospitals. He has devoted ten of these years to the production of this work and has arranged his voluminous and important material with skill and grace. His style is austere yet pleasing, and difficult phases are treated with lucidity. The index is superb. Every physician will discover the volume to be of much value and significance in his daily work.

Handbook on Fractures. By Duncan Eve Jr., M.D., F.A.C.S., Surgeon in Chief, Nashville, Chattanooga and St. Louis Railroad, Nashville, Tenn. In collaboration with Trimble Sharber, A.B., M.D., Attending Surgeon, St. Thomas Hospital, Nashville, Tenn. Cloth. Price, $5. Pp. 263, with 129 illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1947.

This small book covers in a succinct and brief way the general management of fractures. In spite of its brevity it includes a good many detailed descriptions that are important if one wishes to treat fractures satisfactorily. The descriptions are short and to the point. If there is criticism to be made, it might be that too much emphasis is laid on roentgenologic examination and not enough on tenderness. There are a great many fractures without displacement which are not revealed on early roentgenologic examination. In fractures of the femur there is one point that might well have been emphasized; that is, the preservation of the crown of the femur. Most of the illustrations are good, but some of the roentgenograms seem a bit foggy. There is one point of view which some authorities might disagree on; a fracture of the cuboid bone does not need a plaster cast. A felt pad 1/2 inch (1.27 cm.) thick placed under the sole from the heads of the metatarsals to the os calcis will relieve pressure and make it possible for the patient to walk about while the fracture is uniting. This is a valuable book for the medical student and for those practitioners who encounter fractures but do not have time to read about them in great detail. On the whole, the emphasis is laid on conservative methods rather than on gadgets. This is a healthy attitude at this time when so many surgeons are using metal in treating fractures. Those interested in the treatment of fractures will find Dr. Eve's book a useful addition to their libraries.

Sir W. Arbuthnot Lane, Bart., C.B., M.S., F.R.C.S.: His Life and Work. By W.E. Tanner, M.S., F.R.C.S. Cloth. Price, $4.50. Pp. 192, with portrait. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1946.

Sir W. Arbuthnot Lane will probably be remembered for Lane's kink, which was a mistake, and for his subsequent embarkation into notions regarding diet and health, which were probably even greater mistakes. He should be remembered as a great surgeon who in his prime was recognized throughout the world. He should be remembered for his development of the metallic plates and implements which continue to be used in surgery. His biographer believes that some of the statements made by Lane in his later years which were so greatly attacked were made with his tongue in his cheek simply to startle the medical profession. The biography is worthy of note as a study of one of the most interesting characters in modern medicine.

The Christchurch Hospital Medical Manual. Edited by C. T. Hand Newton, D.S.O., M.D., F.R.A.C.P. Second edition. Cloth. Price, 15s. Pp. 109, with 1 illustration. N. M. Peryer Limited, 145-147 Worcester St., Christchurch, C. 1, New Zealand 1947.

This manual, prepared for the guidance of the visiting and house staffs, nurses and dietitians, concentrates mainly on the use of roentgenologic and laboratory services as aids to clinical diagnosis and therapy. Articles have also been included on fluid balance, hypersensitivity to serum and the use of blood and plasma in clinical practice. Approximately half of the book is devoted to general and special diets which can be employed routinely or in modified form to meet individual needs. The book has become a convenient and informative source of reference for the medical and hospital personnel.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CARBOHYDRATE ALLERGY

To the Editor:—**A woman aged 51 complains that she is "allergic to sugar or carbohydrates and has been for the past eighteen or twenty years." When she eats sugar there develop edema of the ankles, swelling of the abdomen and puffiness of the face and hands. After the ingestion of carbohydrates she has nocturia seven or eight times. Physical examination was negative except for a hypotension of 90 systolic and 60 diastolic, a bradycardia of around 48 and hypoactive reflexes. An electrocardiogram and a roentgenogram of the gallbladder revealed normal conditions. On roentgen examination the chest was normal except for a few adhesions of the left costophrenic angle. The upper part of the gastrointestinal tract was normal; study of the lower part of the gastrointestinal tract revealed a congenital megacolon (or Hirschsprung's disease). Urinalysis was negative; blood sugar and nonprotein nitrogen were within normal limits. Hippuric acid test of liver function was within normal limits. Gastric analysis disclosed a tendency towards achlorhydria. The blood count was within normal limits and the Wassermann test was negative. The basal metabolic rate was minus 23 per cent. Skin tests were positive for cane sugar, beet sugar, lactose, dextrose and a few other miscellaneous foods. She has learned through trial and error what to eliminate from her diet. Thyroid "depancol" (each enteric-coated tablet contains 0.022 Gm. dihydrocholic acid, 0.292 Gm. pancreatin and 0.097 Gm. bile salts), vitamins, amino acids, "pyribenzamine," prostigmine and hydrochloric acid have been used in treatment. Would a sympathectomy cure her? She lost about 12 pounds (5.4 Kg.) and now weighs only 110 pounds (49.9 Kg.). Her diet is becoming more limited and is restricted to proteins and fats only.**

M.D., California.

ANSWER.—The solution is not obvious. The patient's statement that she is "allergic to sugar or carbohydrates" is probably incorrect. Allergy to sugars is rare, if it occurs at all The positive reactions for extracts of cane sugar, beet sugar, lactose and dextrose should be proved, because in the hands of almost all allergists skin tests for these carbohydrates are uniformly negative whether carried out by the scratch or the intradermal method. Mention of allergy to sugars is not found in standard textbooks on allergy by Coca (Coca, A. F.; Walzer, M., and Thommen, A. A.: Asthma and Hay Fever, Springfield, Ill., Charles C Thomas, 1931), Tuft (Tuft, L.: Clinical Allergy, Philadelphia, W. B. Saunders Company, 1937) or Unger (Unger, L.: Bronchial Asthma, Springfield, Ill., Charles C Thomas, 1945). Vaughan (Vaughan, W. T.: Practice of Allergy, St. Louis, C. V. Mosby Company, 1939, p. 354) has stated that "the possibility of allergy to the refined sugar is decidedly questionable. The writer has seen a few patients who have been convinced in their own minds that one or another kind of sugar has been responsible for allergic manifestations. The possibility exists, of course, that some other food article ingested with the sugar may have been the responsible excitant," e. g., chocolate, almond, cocoanut or peanut. Vaughan has said that skin tests are negative for sugar, but he has quoted cases of allergy to sugar as reported by Rowe and Duke.

Urbach and Gottlieb (Urbach, E., and Gottlieb, P. M. Allergy, Grune & Stratton, New York, 1946, pp. 313-314) stated that allergy to carbohydrates is rare and probably based on a haptene mechanism, while intolerance to carbohydrates is a metabolic disorder generally considered to be a forerunner of diabetes. In either case administration of sugar leads to generalized or cutaneous symptoms which disappear when carbohydrates are avoided. To differentiate, sugar is again given when the patient is symptom free, but this time after an adequate injection of insulin. If symptoms do not occur the case is due to carbohydrate intolerance (latent diabetes); if symptoms occur the diagnosis is hypersensitivity. Urbach and Gottlieb have reported 2 cases in which eczematoid, pruritic dermatitis was aggravated by carbohydrates and relieved when carbohydrates were removed from the diet of the patients.

Avoidance of dietary carbohydrates may not be harmful, as shown by the polar explorer, V. Stefansson, who was in excellent condition after a diet of meat and its fats through a twelve month period.

The hypothyroidism may be important here; continued administration of thyroid seems definitely indicated. Other endocrine therapy, e. g. estrogenic, may also be of service. Sympathectomy is not indicated. Dextrose tolerance tests, examination of the eye grounds and a neurologic search for possible tumor of the brain are in order. To test the patient's complaints, dextrose could be given disguised in capsules; if symptoms did not develop, dextrose could then be tried subcutaneously and then intravenously. The possibility of allergy as a factor would be strengthened by the presence of blood eosinophilia and by the presence of some allergic symptoms in the family or a recognized allergic condition in the patient.

CHOLINE

To the Editor:—**What is the information on use of choline? Are there harmful results from its use in patients with high blood cholesterol levels? What are other indications and dosage for use of choline?**

M.D., Oklahoma.

ANSWER.—Choline, which is commercially available as choline dihydrogen citrate, has been shown to have a lipotropic action. The effect on blood cholesterol levels is negligible. This substance cannot be relied on to reduce a high blood cholesterol to a normal or near normal level or to prevent hypercholesterolemia.

Choline dihydrogen citrate has been accepted for inclusion in "New and Nonofficial Remedies" for the treatment of hepatic disease associated with fatty infiltration. Although animal experiments indicate a favorable action of choline, clinical studies have been inconclusive. Furthermore, it has yet to be conclusively demonstrated that choline therapy is superior to an adequate diet in the treatment of hepatic disease.

Choline should always be given orally, and by that route it is practically nontoxic. It should be noted that most foodstuffs contain substantial quantities of choline. Parenteral administration of choline is dangerous and may lead to circulatory collapse.

The recommended dose of choline dihydrogen citrate is 2 to 3 Gm. orally in divided doses.

ALUM PRECIPITATED DIPHTHERIA VACCINE

To the Editor:—**What is the information on abscess formation from alum precipitated diphtheria vaccine? I have had 2 cases of abscess formation following use of the vaccine in patients aged 36 and aged 2 years. What is the treatment?**

George U. Ivers, M.D., Fargo, N. D.

ANSWER.—A great deal of improvement has been made in the preparation of diphtheria toxoid fluid and diphtheria toxoid, alum precipitated, during the past year. An alum precipitated toxoid in which the alum content is claimed to be reduced by 75 per cent is now available. Toxoids prepared in this manner are said to be practically free from reaction in both children and adults. The dosage required is only about one half the volume customarily used with the standard toxoids. Therefore local reactions caused by the alum are reduced to a minimum.

When an abscess forms after administration of diphtheria toxoid, alum precipitated, absence of redness of the skin indicates that the abscess is probably sterile. Therefore, if it is not interfered with, its absorption may be expected. If the abscess is the result of infection, treatment is the same as for any other superficial abscess.

SCARLET FEVER IMMUNIZATION

To the Editor:—**How effective is scarlet fever streptococcus toxin (as Wyeth's) in preventing scarlet fever? Does it prevent the complications of scarlet fever? Are there any disadvantages or contraindications against active immunization against scarlet fever?**

M.D., New Mexico.

ANSWER.—Scarlet fever streptococcus toxin is of undoubted value for the prevention of the classic form of scarlet fever. Scarlet fever toxin when given in proper dosage will establish immunization against the rash of scarlet fever but does not immunize the recipient against infection with scarlet fever streptococci. Although scarlet fever streptococcus toxin when given for active immunization may prevent toxic manifestations of the disease, it does not eliminate the possibility of suppurative complications. Occasionally there is some unpleasant reaction following the administration of scarlet fever toxin when immunization procedures are carried out.

If a patient is immunized against the toxic manifestations of scarlet fever, including the rash, the necessity for isolation of such a patient when he has an acute case of pharyngitis due to scarlet fever streptococci is not appreciated. Therefore it might be assumed that persons inoculated with scarlet fever toxin could become a hazard to a community; although they harbored scarlet fever streptococci they would have no rash and consequently would not be isolated. Therefore they might transmit clinical scarlet fever to nonimmunized persons.

BLOOD IN NEWBORN

To the Editor:—Discuss and give references concerning the belief that many ounces of blood will be gained by the newborn child if the cord is not cut till its pulsations stop or by milking the blood into the child by stripping the cord toward the child.

M.D., New York.

ANSWER.—The studies of Q. B. DeMarsh, H. L. Alt and W. F. Windle (THE JOURNAL, June 7, 1941, page 2568) have definitely shown that deprivation of the infant of the portion of its blood that is in the placenta by clamping the umbilical cord immediately after birth influences the red corpuscle count and hemoglobin content of the blood during the first week of life. Those infants whose cords were not clamped until the placenta had separated from the uterus had on the average 0.56 million more red blood corpuscles per cubic millimeter and 2.6 Gm. more hemoglobin per hundred cubic centimeters during the first week of life than those whose cords were clamped immediately.

Blood drawn from the infant's navel twenty to seventy-five minutes after birth had significantly higher red corpuscle and hemoglobin values than blood drawn from the umbilical cord at birth. Possibly the spleen plays a part in bringing on this polycythemia of birth. Higher reticulocyte counts in infants whose cords were clamped immediately suggested a greater demand for blood in this group than in the group whose cords were not clamped until placental separation. Early clamping of the umbilical cord is equivalent to submitting the child to a hemorrhage at birth.

The editors of the "1941 Year Book of Obstetrics and Gynecology" made the following comment concerning this article: "The same authors have also proved that such deprivation of placental blood may lead to an iron deficiency which may persist during the first year of life (Am. J. Dis. Child. **62**:320 [Aug.] 1941). For this reason some operators force the placental blood into the baby's circulation by stripping the cord. This can be dangerous if done roughly—forcing blood into an already full circulatory system causing heart block and rupture of fine vessels. In earlier times we ascribed melena neonatorum to this practice. The baby will get the blood it is entitled to if you wait a few minutes before clamping or tying the cord."

ALLERGIC RHINITIS

To the Editor:—In August 1946 my daughter, aged 16 years, contracted allergic rhinitis, apparently following a severe head cold.

She had intravenous histamine therapy without result. Diphenylhydramine hydrochloride ("benadryl") gives her temporary relief but makes her drowsy. Packing the nostrils with mild silver protein ("argyrol") 10 per cent seems to help a little. She sneezes a great deal night and morning. What other treatment is suggested?

De Vere Ritchie, M.D., Orlando, Fla.

ANSWER.—The history does not contain sufficient data for a diagnosis. If diagnosis is definitely allergic rhinitis the next step before treatment (other than palliative) is to make an etiologic diagnosis. Home environmental substances to which the patient may have become allergic, or the seasonal and perennial allergens in the air (pollens, molds) may be causes of this condition. Food sensitization may aggravate inhalant causes. Have a competent specialist in allergy determine the causes of the condition. Treatment will then depend on the offending causes.

Use of mild protein silver packs in allergy is certainly contraindicated. It will lead to chemical irritation of an already irritable, hypersensitive mucosa. Use of histamine in the treatment of nasal allergy is considered by many allergists to be of questionable value.

FALSE POSITIVE FREI TEST

To the Editor:—What is the information on false positive Frei tests with all antigen? Please furnish recent references on this subject.

M.D., Maine.

ANSWER.—A false positive Frei test may occur with antigen of human bubo origin, chick embryo origin or mouse brain origin. When employing antigen of chick embryo or mouse brain origin controls should be run with uninfected materials. False positive reactions are sometimes obtained during the acute phase of one or another of the other venereal diseases, i. e., syphilis and chancroid, and may occur in patients who are highly allergic. In the presence of a suspected false positive reaction a complement fixation test will help to rule out the disease.

Reference:

Greenblatt, R. B.: Management of Chancroid, Granuloma Inguinale and Lymphogranuloma Venereum in General Practice, Ven. Dis. Inform., 1943, supp. 19.

POSTCOITAL HEADACHE

To the Editor:—A Negro woman aged 25, married eighteen months, has been suffering for the past sixteen months with moderate to severe postcoital backache, in the right lower quadrant and severe headache in the right frontotemporal region. Headache also occurs occasionally on the left side.

Two months after marriage, she had symptoms of nausea, epigastric pain and flatulence after meals. Examination revealed a six weeks pregnant uterus. The uterus showed second degree retroversion, which appeared to be congenital but had given the patient no previous trouble. The flatulency became worse, and the abdomen was distended beyond normal proportions. Two months later the patient had an attack of severe gastrointestinal distress with vomiting and diarrhea, at which time she apparently lost the fetus. One month later the uterus was empty. Continuous headache was relieved temporarily but soon returned. She also complained of hot flushes, which are becoming less frequent.

The patient was examined by a specialist in February 1946. He told her that her condition was due only to change in climate and to adjustment of her body to married life. He prescribed diethylstilbesterol and thyroid, which gave her relief for about three months, after which the headache, backache and gastrointestinal distress returned. The patient lived in a dry climate before marriage but now lives in a moist climate; the color of her skin becomes lighter and menstruation becomes prolonged whenever she returns to the dry climate. In a recent Aschheim-Zondek test her urine was toxic and killed an animal.

I believe the cause is partly climate and partly psychic; however, I have discontinued treatment pending consultation. Please discuss this case and suggest treatment.

M.D., Massachusetts.

ANSWER.—The symptoms do not appear to be caused by any gynecologic abnormality, and apparently none was found by the specialist. This patient should have a complete investigation of the gastrointestinal tract with roentgenologic studies. No reason for giving diethylstilbestrol is apparent. Thyroid should not be administered unless basal metabolic studies indicate the need for it.

MALIGNANT MELANOMA

To the Editor:—Some months ago an apparently otherwise healthy person came to me with a nevus on the left temple which was breaking down. I destroyed it with the electric needle under procaine anesthesia including the surrounding area to the extent of about a 5 cent piece. The wound healed satisfactorily and the patient had no further symptoms for three or four months when the parotid gland became greatly enlarged and quite dense. Diagnosis of malignant melanoma with metastases to the lungs was made. The roentgenologist studied films of the lungs made prior to my destruction of the growth on the temple and concluded that they showed evidence of metastasis. Hard lumps are now scattered anteriorly and posteriorly under the skin of the abdomen and chest. The man works regularly and says that he feels well.

Is there a presumption that destruction of the nevus was incomplete and was responsible for the subsequent rapid development of the parotid tumor and its widespread metastasis? Should surgical measures have been avoided at that time? The roentgenologist believes that metastasis was present in the lungs prior to destruction of the nevus, but he admits that it is only an opinion and not a certainty.

M.D., Pennsylvania.

ANSWER.—There is a strong suspicion that inadequate treatment of a nevus can lead to disseminated melanoma. The evidence in this case seems to indicate that the dissemination was not related to the treatment.

ENDOMETRIOSIS

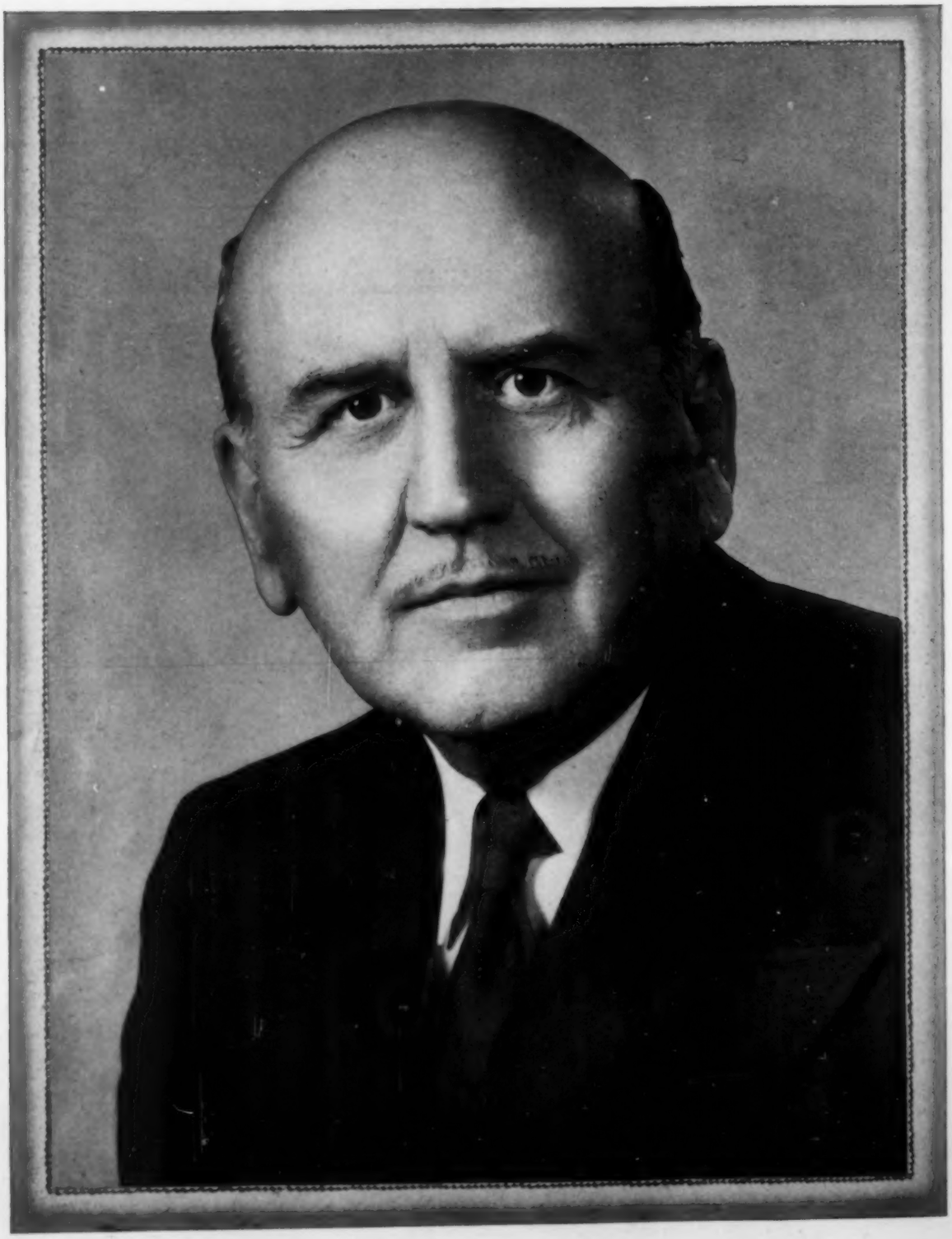
To the Editor:—In patients with endometriosis who are approaching the menopause, is there objection to using estrone for menopausal symptoms during and after menopause? This patient has two or three years to go before menopause is established. She has chocolate cysts and at present has no symptoms.

M. Karasek, M.D., Shidler, Okla.

ANSWER.—To clarify terms and definitions, menopause is that period when menstruation normally ceases and is established with the last period. The term menopause, or menopausal syndrome, is more loosely applied to that period from the terminal menstrual period until hot flushes and vasomotor symptoms cease, usually varying from six months to three years. Women with enough ovarian function to menstruate will not have menopausal symptoms, and some women apparently produce enough estrogen to relieve menopausal symptoms past the time of the last period.

Endometriosis should be thought of in exactly the same light as endometrium of the uterus. Anything (estrogen) that will stimulate endometrium will cause areas of endometriosis to grow or proliferate. Therefore, the use of estrogen is usually contraindicated in any phase of this disease.

Chocolate cysts are usually diagnosed at the time of surgical intervention and may have an etiologic basis other than endometriosis. Pain usually accompanies endometriosis.



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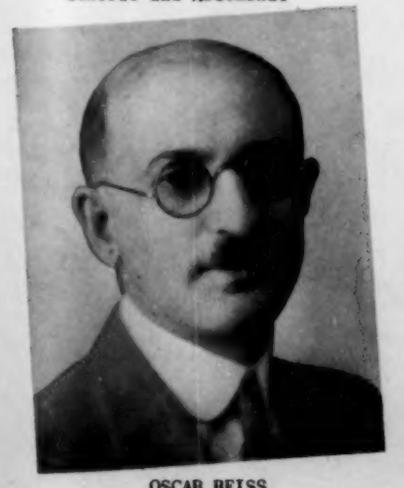

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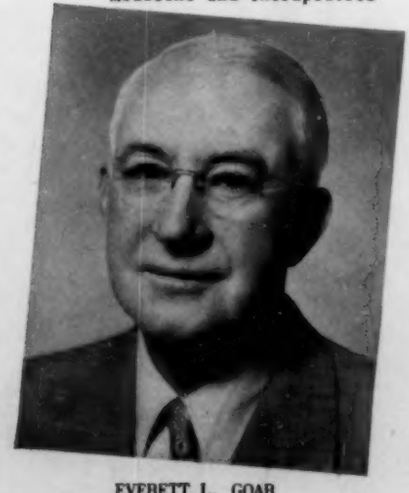

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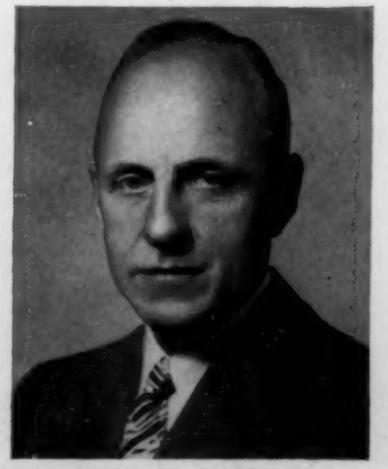

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